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SECTION 01025

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## SECTION 01025

## MEASUREMENT AND PAYMENT

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Weight Certificates

Submit Certified Weight Tickets for Fill Stone, and Armor Stone.

## 1.2 LUMP SUM PAYMENT ITEMS

## 1.2.1 General

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

## 1.2.2 Lump Sum Items

## a. "SITE PREPARATION" Item No. 0001

(1) Payment will be made for all costs associated with Site Preparation, Excavation of Material, On-Site Fill, Broken Concrete Slabs and Seeding as required in SECTION 02139 "SITE PREPARATION"; including mobilization and demobilization.

(2) Unit of measure: lump sum.

## 1.3 UNIT PRICE PAYMENT ITEMS

## 1.3.1 General

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and

reports, and for performing all work required for each of the unit price items.

### 1.3.2 Unit Price Items

a. "Geotextile" Item No. 0002

(1) Payment will be made for costs associated with placement of Geotextile materials as specified in Section 02373 "GEOTEXTILE", and will be paid for at the contract unit price for "GEOTEXTILE" "First 3,100 Square Yards" and "Over 3,100 Square Yards".

(2) Unit of measure: Square Feet.

b. "Off Site Fill Material" Item No. 0003

(1) Payment will be made for costs associated with placement of off site fill material as specified in Section 02139 "SITE PREPARATION", and will be paid for at the contract unit price for "Off Site Fill Material" "First 960 Cubic Yards" and "Over 960 Cubic Yards".

(2) Unit of measure: Cubic Yards.

e. "Top Soil Material" Item No. 0004

(1) Payment will be made for costs associated with placement of top soil material as specified in SECTION 02139 "SITE PREPARATION", and will be paid for at the contract unit price for "Top Soil Material".

(2) Unit of measure: Cubic Yards.

f. "Armor Stone Shore Protection (1,600 - 3,200 Pounds)" Item No. 0005

(1) Payment will be made for costs associated with placement of armor stone shore protection as specified in Section 02486 "STONE CONSTRUCTION", and will be paid for at the contract unit price for "Armor Stone" "First 6,200 Tons" and "Over 6,200 Tons".

(2) Unit of measure: Tons.

g. "Drainage" Item No. 0006

(1) Payment will be made for costs associated with placement of HPDE slotted and non slotted pipe, geotextile filter sock, caps, and outlet screen, as specified in Section 02540 "MINI-HORIZONTAL DIRECTIONAL DRILLING", and Section 02521N "WATER SUPPLY WELL" and will be paid for at the contract unit price for "4" HDPE slotted pipe" and "4" HDPE non slotted pipe".

(2) Unit of measure: Lineal Feet.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

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SECTION 01090

SOURCES FOR REFERENCE PUBLICATIONS

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## SECTION 01090

## SOURCES FOR REFERENCE PUBLICATIONS

## PART 1 GENERAL

## 1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the sponsoring organization, e.g.

UL 1 (1993; Rev thru Jan 1995) Flexible Metal Conduit. However, when the sponsoring organization has not assigned a number to a document, an identifying number has been assigned for convenience, e.g. UL's unnumbered 1995 edition of their Building Materials Directory is identified as UL-01 (1995) Building Materials Directory. The sponsoring organization number (UL 1) can be distinguished from an assigned identifying number (UL-01) by the lack of a dash mark (-) in the sponsoring organization assigned number.

## 1.2 ORDERING INFORMATION

The addresses of the organizations whose publications are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided. Documents listed in the specifications with numbers which were not assigned by the sponsoring organization should be ordered from the source by title rather than by number.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959  
Ph: 610-832-9500  
Fax: 610-832-9555  
E-mail: [cservice@astm.org](mailto:cservice@astm.org)

## CODE OF FEDERAL REGULATIONS (CFR)

Order from:  
Government Printing Office  
Washington, DC 20402  
Ph: 202-512-1800  
Fax: 202-275-7703  
Internet: <http://www.pls.com:8001/his/cfr.html>

## ENGINEERING MANUALS (EM)

USACE Publications Depot  
Attn: CEIM-SP-D

2803 52nd Avenue  
Hyattsville, MD 20781-1102  
Ph: 301-394-0081

WISCONSIN DEPARTMENT OF TRANSPORTATION (WDOT)

Order from:  
Standard Specifications for Highway and Structure Construction  
(1996)

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

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## DIVISION 01 - GENERAL REQUIREMENTS

## SECTION 01100

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## SECTION 01100

## SPECIAL PROJECT PROCEDURES

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## CODE OF FEDERAL REGULATIONS (CFR)

33 CFR 320-330                      General Regulatory Policies, Permits,  
   Enforcement and Definitions

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

## Accident Prevention Plan

Contractor shall provide an accident prevention plan including an activity hazard analysis to the Contracting Officer within 15 calendar days after receipt of award. Plan shall be in accordance with Contract Clause entitled "ACCIDENT PREVENTION (NOV 1991) - ALTERNATE 1.

## Payrolls and Basic Records

Contractor shall submit payrolls and basic records in accordance with the CLAUSE entitled "PAYROLLS AND BASIC RECORDS (FEB 1988)".

## Progress Chart; G-AOF

Contractor shall submit progress chart in accordance with the Contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS (APR 1984)".

## Non-listed, Non-Commercially Active Stone or Material Source; G-ECD.

If after award of a contract, the Contractor proposes to furnish stone, or aggregate materials from non-listed, or non-commercially active sources, the following information and data for each non-listed or non-commercially active source of stone, or aggregate material shall be furnished forty-five (45) or more calendar days prior to the date the Contractor is scheduled to obtain materials from such source(s).

- a. Name and address (Property Owner).
- b. Location, site map, and legal description (or appropriate

substitute) of the area.

- c. Previous land use information.
- d. A topographic map of the area.
- e. Photographs showing the area proposed for use.
- f. Written permission of the owners of the proposed non-listed or non-commercially active source(s).
- g. Written permission of the owners of the access properties involved.
- h. All data required to assess potential environmental impacts. This information is required in order to determine the necessity for environmental documentation for any non-commercially active, non-listed source(s).
- i. Documentation of coordination of the use of proposed non-commercially active, non-listed source(s) with Federal, State and local agencies having an interest and furnish written approval of these agencies for use of such source(s).
  - (1) Supervisor, Green Bay Field Office, U.S. Fish and Wildlife Service, 1015 Challenger Court, 43 Business Center, Green Bay, Wisconsin 54311.
  - (2) Chief, Planning and Assessment Branch (ME-J19), U.S. Environmental Protection Agency, 77 West Jackson Blvd., Chicago, Illinois 60604-3590.
  - (3) Chief, Compliance Section, Historic Preservation Division, State Historical Society of Wisconsin, 816 State Street, Madison, Wisconsin 53706.
  - (4) Chief, Lake Michigan District, Wisconsin Department of Natural Resources, P.O. Box 10448, Green Bay, Wisconsin 54307-0448.
  - (5) Chief, Southeast District, Wisconsin Department of Natural Resources, P.O. Box 12436, Milwaukee, Wisconsin 53213.
  - (6) Chief, Northwest District, Wisconsin Department of Natural Resources, P.O. Box 309, Spooner, Wisconsin 54801.
- j. The proposed reduction, if any, in the applicable unit or lump-sum prices in the BIDDING SCHEDULE if the request were to be approved by the Government.

#### Notice to Mariners

A copy of the completed "NOTICE TO MARINERS" form and a copy of the U.S. Coast Guard's official notice shall be provided prior to the commencement of work.

#### Buoy Relocation Position

Immediately upon relocating any U.S. Coast Guard buoys the Contractor shall report their position by latitude and longitude in writing.

Utility Locating Plan; G-AOF.

Submit a plan of the proposed procedure for locating existing utilities prior to commencing work at the project site. The plan shall include the local telephone number of MISS DIG, if work includes upland excavation.

Utility Location Findings; G-AOF.

Submit a copy of the utility location findings prior to commencing work on the site.

Traffic Control Plan; G-AOF.

At least fifteen (15) calendar days prior to commencing work at the site, submit a detailed, site specific plan for the control of traffic on the public roadways adjacent to the work area. Coordination of construction traffic with public use of the roadways shall be fully described, including all safety related characteristics.

Survey Note Format; G-ECD.

Submit the proposed survey note format prior to performing any survey work at the work site.

#### SD-07 Certificates

##### As-Built Technician's Qualifications

Submit the identity and qualifications of the persons assigned to prepare the as-built information at least 10 calendar days in advance of preparing the drawings.

As-built Drawings; G-AOF.

Within ten (10) calendar days after the substantial completion date as established by the Contracting Officer, submit the as-built details of the work performed under this contract on a set of blue-line prints of the contract drawings marked in red. Following review and approval by the Government, the Contractor shall prepare electronic and mylar copies of as-built drawings for submittal within 15 calendar days following receipt of comments from the Government. Electronic files shall be submitted in Microstation 95 (.dgn) CADD file format, suitable for plotting with Intergraph IPLOT Software. The electronic medium for file transfers shall be agreed to prior to the time of submittal and shall be compatible with current industry standards and hardware configurations.

##### Survey Information

Upon completion of the contract work, the originals of all field notes, sketches, recordings and computations made by the Contractor in performing the layout work shall be submitted in ring binders.

### 1.3 REGULATORY REQUIREMENTS

#### 1.3.1 Additional Work Proposed and Not Authorized

##### 1.3.1.1 Work Subject to 33 CFR 320-330

Any additional work (not specifically shown on the plans or delineated in

the specifications) proposed by the Contractor in or affecting navigable waters, including wetlands (as defined in 33 CFR 320-330, published in the Federal Register Vol.51, No. 219, Thursday, November 13, 1986) shall not be performed without a Department of the Army Permit. This requirement shall be applicable to all work, permanent or temporary, and/or fill(s). The Department of the Army Permit shall be approved by the District Engineer or Deputy District Engineer in accordance with the laws of the United States and the regulations promulgated thereunder, including, but not limited to, the River and Harbor Act of 1899, the Clean Water Act and the National Environmental Policy Act of 1969, as amended. Corps employees (Contracting Officer's Representatives (COR) or inspectors) are not delegated authority to authorize such work. Information on making application for such permit(s) may be obtained by contacting one of the offices as listed hereinafter. When applying for information or a permit, a copy of any correspondence should be directed to the Contracting Officer of this contract. If a permit is not obtained, the additional work cannot be accomplished. Any delay in processing the permit will not constitute the basis of a claim under this contract. The fact that the Contractor is performing work under a Department of the Army Contract will give the Contractor no greater rights than any other applicant for a Department of the Army Permit.

#### WISCONSIN-MINNESOTA

Regulatory Functions Branch  
Construction-Operations Division  
U.S. Army Engineer District, St. Paul  
1135 USPO & Custom House  
St. Paul, MN 55101  
Telephone: 612-725-5819

### 1.4 PROJECT/SITE CONDITIONS

#### 1.4 Condition and Use of Project Site

The drawings indicate soundings and elevations at the project site as found in condition surveys made as stated on the contract drawings. A notification of at least five (5) calendar days shall be given to the Contracting Officer prior to bringing any construction equipment or material upon the work site. The Contractor shall be responsible for damages that may be suffered due to its operations. The Contractor shall note CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS."

##### 1.4.1 Physical Conditions

The physical conditions shown on the drawings are indicative of those that prevailed at the time of the site investigations and may be different than those at the time of construction. Significant variations that would require changes to the plans or specification shall be reported to the Contracting Officer immediately.

##### 1.4.2 Work and Storage Areas

Work and storage areas will be provided at the site and will be as designated and/or approved by the Contracting Officer.

### 1.5 Waterways Navigation and Traffic

The Contractor shall acquaint itself with all information and regulations pertaining to navigation and vessel traffic within the waterways at the project site. The Contractor shall coordinate with the U.S. Coast Guard to assure that a "NOTICE TO MARINERS" is issued prior to its work activity at the project site. A copy of the requisite notice form is enclosed in SECTION 01999. The completed form shall be sent to the address stated in the Subparagraph entitled "Temporary Lights, Signals and Buoys Required by U.S. Coast Guard". The Government will not undertake to keep the waterways free from vessels or other obstructions, except to the extent of such regulations, if any, as may be prescribed by the Secretary of the Army, in accordance with the provisions of Section 7 of the River and Harbor Act approved 8 August 1917 (see Title 33, U.S.C.A. Sec. 1). The Contractor is required to conduct its work in such manner as to obstruct navigation as little as possible and, in case the Contractor's plant so obstructs a channel as to make difficult or endanger the passage of vessels, said plant shall be promptly moved on the approach of any vessel to such an extent as may be necessary to afford a practicable passage. Upon completion of the work, the Contractor shall promptly remove its plant, including ranges, buoys, piles, and other marks placed by it under the contract in navigable waters or on shore.

#### 1.5.1 Navigation

Information and regulations pertaining to navigation may be obtained from the current issue of the "UNITED STATES COAST PILOT 6," issued annually by the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA). The "UNITED STATES COAST PILOT" may be obtained from National Ocean Survey, NOAA, Distribution Division-C44, Riverdale, Maryland 20840.

#### 1.5.2 Traffic

Vessels that may use the waterways at the project site consist of recreational craft and commercial vessels. This traffic may interfere with contract operations and the Contractor shall conduct its work with due regard to and in coordination with the requirements of all navigation. Information regarding the types and amount of passages made by commercial vessels that may use the waterways at the project site may be obtained from the current issue of the "Waterborne Commerce of the United States, Part 3, Waterways and Harbors, Great Lakes," published by the Department of Army, Corps of Engineers. The Department of the Army publication may be obtained at no charge from the following:

District Engineer, U.S. Army Engineer District, New Orleans, Waterborne Commerce Section, P.O. Box 60267, New Orleans, Louisiana 70160. Phone 504-862-1425, FAX 504-862-1091.

### 1.6 Prevailing Lake Levels

Average water levels in Lake Michigan fluctuate above Low Water Datum (LWD). Portions of the work which could be accomplished above water during average years may have to be accomplished under water if lake levels are unusually high. Information on current and anticipated lake levels may be obtained from Detroit District, Corps of Engineers; CELRE-EP-HE; P.O. Box 1027; Detroit, Michigan 48231.

### 1.7 Existing Vegetation, Structures, Equipment, Utilities & Improvements

General locations of applicable existing utilities, vegetation, structures, equipment and improvements, based upon latest information available to the Government have been shown on the drawings. However, it is the Contractor's obligation to establish the exact horizontal and vertical location and size of all existing utility lines which are located within the required work area. The Contractor shall submit a utility locating plan for locating existing utilities and a copy of its utility location findings prior to commencing work on the site. Any utility lines which are not found by the Contractor, but which are known to exist at the project site, shall be reported to the Contracting Officer immediately. The Contracting Officer will have the option of directing commencement of work at the site or requiring the Contractor to submit further plans for locating the utility lines. Once the utilities have been located and marked, the Contractor shall be deemed to have the location made known to it pursuant to CLAUSE titled "PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS." If the Contractor damages any existing utility line, vegetation, structure, equipment or improvement, a report thereof shall be made immediately to the Contracting Officer. In any event, existing utility lines, vegetation, structures, equipment or improvements shall be protected from damage, and if damaged, shall be repaired by the Contractor at its own expense.

### 1.8 Vehicular Access

Throughout the period of work on this contract, the Contractor shall maintain an all-weather roadway through or around its work area when work therein would otherwise block an existing roadway. Such permanent or temporary roadways shall be kept open for use by emergency vehicles, as well as residential and commercial traffic at all times.

### 1.9 Utility Services

#### 1.9.1 Contractor-Furnished Utility Services

The Contractor shall furnish, all water, electric current and other utilities required for its use.

### 1.10 Protection and Maintenance of Traffic

#### 1.10.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic. Construction material for haul road could be same material as required for stone fill placement. Once haul for is no longer required the material may be used for fill so long as it meets the requirements of stone fill as specified in Section 02486 STONE CONSTRUCTION. The method of dust control shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads shall be removed unless otherwise approved by the Contracting Officer. Any dirt or mud

which is tracked onto paved or surfaced roadways shall be promptly cleaned away.

#### 1.10.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe and public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

#### 1.11 Identification of Employees

The Contractor shall be responsible for requiring each employee engaged on the work to wear a hardhat with labeling as required to identify that the person is an employee of the Contractor or to display other identification as may be approved.

#### 1.4.12 Contract Supervision and Representation

The Contractor's local representative shall be available to Government representatives during duty hours, 8 a.m. to 4:30 p.m., on normal working days and shall be available by telephone at other times. The name of the Contractor's representative and the contact telephone number shall be furnished to the Government.

#### 1.12 Quantity Surveys

The CLAUSE titled "QUANTITY SURVEYS" is applicable other than for measurement of quantities of work performed for stone construction utilizing new stone. Measurement and payment for stone construction is as specified in SECTION 01025, "MEASUREMENT AND PAYMENT" and SECTION 02486, "STONE CONSTRUCTION".

#### 1.13 Traffic Control Plan

The Contractor shall control traffic in accordance with its approved plan.

#### 1.14 Temporary Lights, Signals and Buoys Required by Coast Guard

All temporary lights, signals and buoys required by the U.S. Coast Guard must be displayed during the required work. Information regarding required signals, lights, buoys and other requirements may be obtained from the Commander (oan), Ninth Coast Guard District, 1240 East Ninth Street, Cleveland, Ohio 44199-2060, Telephone (216) 522-3990.

#### 1.15 Layout of Work and Surveys

##### 1.15.1 Layout of Work

The following requirements are in addition to the requirements of CLAUSE titled "LAYOUT OF WORK." The Government has established bench marks and horizontal control points at the site of the work. Horizontal control points and descriptions of bench marks are shown on the drawings and on sheets enclosed in SECTION 01999. The elevations of bench marks are referred to mean water level (IGLD 1955).



### 1.15.2 Surveyor Requirements

From these control points and bench marks, the Contractor shall lay out the work by establishing all lines, grades, range markers and gauges at the site as necessary to control the work. All survey information shall be recorded in accordance with standard and approved methods and in the survey note format approved by the Contracting Officer. All field notes, sketches, recordings and computations made by the Contractor in performing the layout work shall be available at all times during the progress of the work for ready examination by the Contracting Officer or his or her duly authorized representative and upon completion of the contract work the originals shall be turned over to the Contracting Officer in ring binders.

### 1.15.3 Suspension

The Contracting Officer may require that work be suspended at any time when location and limit marks established by the Contractor are not reasonably adequate to permit checking the work. Such suspension will be withdrawn upon satisfactory replacement of location and limit marks. Such suspension shall be at no additional cost to the Government and shall not entitle the Contractor to an extension of time for completing the work.

### 1.15.4 Verification

The Government may make checks as the work progresses to verify lines and grades established by the Contractor and to determine the conformance of the completed work as it progresses with the requirements of contract specifications and drawings. Such checking by the Contracting Officer or his or her representative shall not relieve the Contractor of its responsibility to perform all work in accordance with the contract drawings and specifications and the lines and grades given therein.

## 1.16 SEQUENCING AND SCHEDULING

### 1.16.1 Exclusion of Period in Computing Completion Schedules

No on-site work will be required during the period between 1 November and 15 April inclusive and the days in this period will not be counted when computing the required completion date. The Contractor may perform work, unless otherwise prohibited, during all or any part of this period upon giving prior written notice to the Contracting Officer.

### 1.16.2 Sunday, Holiday, Night, and Extended Hours of Operations

When the Contractor elects to work more than 8 hours per day, Monday through Friday, and on Saturdays, Sundays, holidays or nights when not prohibited herein, notice of its intention to do so shall be given to the Contracting Officer not less than forty-eight (48) hours in advance thereof. Adequate lighting for thorough inspection of night operations shall be provided by the Contractor at its expense.

### 1.16.3 Start Work

Evidence that the Contractor has started procurement of materials, preparation and submission of shop drawings, preparation of subcontracts, and other preparatory work will satisfy the requirement that work commence within ten (10) calendar days after receipt of Notice to Proceed. (See Clause titled COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK, FAR

52.212-0003.)

#### 1.17 ACCOMMODATIONS FOR INSPECTORS

The Contractor shall, prior to the start of work, furnish a temporary field office for Government personnel, physically and acoustically separated from the Contractor's offices, located near the site of the work, as approved by the Contracting Officer. The Contractor shall have the option of providing the field office facility in an existing or new building, or a trailer. All utilities as specified or required shall be hooked up and in working order prior to the start of work and shall be maintained during the entire contract period. The entire cost to the Contractor for furnishing, equipping and maintaining the accommodations shall be included in the contract price. If the Contractor fails to meet these requirements, the facilities will be secured by the Contracting Officer and the cost thereof will be deducted from payments to the Contractor. All facilities provided for the use of Government personnel under this Paragraph shall remain the property of the Contractor.

##### 1.17.1 Field Office

The temporary field office shall have approximately 200 square feet of floor space and a minimum of seven (7) feet of headroom. An eight (8) foot by thirty (30) foot office trailer may be made available in lieu of the building. The field office or trailer shall be provided with a work table, two (2) lockable desks, and five (5) chairs. It shall be weatherproof and be supplied with heat in season, a minimum of one (1) door, electric lights, a telephone answering device with handset, a facsimile machine, a medium production rate plain paper copier with sorter and paper supplies, a sufficient number of adjustable windows for adequate light and ventilation, toilet facilities with a wash basin with unheated water, and water cooler with approved drinking water. Telephone service to the Government's field office will be provided by the Contractor. Exterior portable toilet facilities without wash basin may be provided in lieu of interior toilet facilities. The windows shall be screened and provided with locking devices, arranged to open and be securely fastened from the inside. In warm weather, air conditioning shall be furnished which will maintain the office at 50 percent relative humidity and a room temperature of 75 degrees F, or 20 degrees below the outside temperature when the outside temperature is 95 degrees F or higher. In addition to the above requirements, the Government field office or trailer shall be provided with the following:

##### 1.17.1.1 Door Locks

Each exterior door shall be provided with an approved deadbolt lock in the door, key operated from both sides and tamperproof heavy duty hasp bolted to the door. Each lock shall be provided with two (2) keys.

##### 1.17.1.2 Security Window Guards

All exterior window openings and glazed panels of exterior doors shall be provided with security window guards. As a minimum, they shall be round frame stationary window guards consisting of 1-1/2 inch diamond mesh No. 10 W & M gage wire, clinched to 3/8 inch round rod frames, secured to the building or trailer with tamperproof fastenings and shall cover the entire glazed opening.

#### 1.17.1.3 Lighting

A light shall be installed over each exterior door and shall be kept lighted at night, including Saturdays, Sundays and holidays.

#### 1.17.1.4 Storage Closet

The field office building or trailer shall have a closet for storage of pilferable equipment. The closet shall be at least three (3) foot by three (3) foot, floor to ceiling height, and have one (1) upper shelf. The door to the closet shall have an approved deadbolt lock or a hasp with an approved padlock. The hasp shall be installed with tamperproof type fastenings. Two (2) keys shall be provided for the deadbolt lock or padlock. Leaves of door hinges shall be unexposed.

#### 1.17.1.5 Cleaning

The Contractor shall clean the office facility once each work week, or as directed. Cleaning shall include, but not be limited to, sweeping the floor, dusting furniture, collecting trash, floor scrubbing, window washing and toilet facility cleaning.

### 1.18 REPORT REQUIREMENTS

#### 1.18.1 Accident Prevention Plan

Contractor shall provide an accident prevention plan including an activity hazard analysis to the Contracting Officer within 15 calendar days after receipt of award. Plan shall be in accordance with Contract Clause entitled "ACCIDENT PREVENTION (NOV 1991) - ALTERNATE 1.

#### 1.18.2 Payrolls and Basic Records

Contractor shall submit payrolls and basic records in accordance with the CLAUSE entitled "PAYROLLS AND BASIC RECORDS (FEB 1988)".

#### 1.18.3 Progress Chart

Contractor shall submit progress chart in accordance with the Contract clause entitled "SCHEDULE FOR CONSTRUCTION CONTRACTS (APR 1984)".

## PART 2 PRODUCTS

### 2.1 MATERIALS

#### 2.1.1 Use of Materials from Non-Listed, Non-Commercially Active Sources

If after award of the contract, the Contractor proposes to use stone from a source or sources other than approved commercially active sources or the sources listed in SECTION 02486, "STONE CONSTRUCTION", Paragraph, "STONE MATERIALS", Subparagraph, "Sources" or to use soil, granular or aggregate materials for fill from a non-commercially active source or sources, the Contractor shall submit data as required in the Paragraph entitled "SUBMITTALS". The data shall be accompanied by a request for approval. Non-listed, non-commercially active stone or material sources shall not be used unless the proposal and use of the source(s) are approved by the Contracting Officer in accordance with applicable provisions of the contract. All expenses incurred by the Government and the Contractor in connection with the Contractor's request for approval for the use of

materials from non-listed, non-commercially active sources shall be borne by the Contractor and all use of such materials and all operations in connection therewith shall be at the Contractor's risk. No extension of the time for completion of the work will be granted as the result of disapproval or approval of the Contractor's request to use a non-listed, non-commercially active source or sources. If not approved, the Contractor shall use materials from the applicable listed or commercially active source(s).

## 2.2 AS-BUILT DRAWINGS

The as-built drawing details shall be accurate and of professional quality prepared those with adequate as-built technician's qualifications.

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## SECTION 01101

## REAL ESTATE

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Additional Property Agreements; G-RED.

Copies of any agreements for Contractor-acquired real estate rights for this project shall be furnished before entering thereon.

## 1.2 REGULATORY REQUIREMENTS

## 1.2.1 Real Estate Rights

Rights for the use of the Government-furnished work and storage areas have been obtained and the general limits of the areas are shown on the drawings. Copies of instruments conveying rights for use of the work and storage areas shown on the drawings and specified herein are available for inspection in the Engineering & Planning Division Design Branch, U.S. Army Corps of Engineers, Detroit District, 477 Michigan Avenue, McNamara Building, Detroit, Michigan. Conformance to all applicable requirements of the instruments conveying rights is required. Two (2) copies of each instrument will be furnished to the Contractor. All real estate lakeward of the Ordinary High Water Mark (Elevation 580.8 feet) is under Federal jurisdiction and no other real estate permits or agreements are necessary for work therein except as specified in SECTION 01100, "SPECIAL PROJECT PROCEDURES", Paragraph, "Additional Work Proposed and Not Authorized". No other real estate rights have been obtained by the Government for this project.

## 1.2.2 Additional Real Estate Rights

Any additional property agreements and/or real estate rights desired by the Contractor shall be obtained by the Contractor at its own expense. Such agreements shall clearly relieve the Government of any responsibility for damages or liability resulting from the Contractor's use of such grounds.

## 1.3 PROJECT/SITE CONDITIONS

## 1.3.1 Location and Verification

It shall be the Contractor's responsibility to accurately locate the limits of all lands utilized under the contract. The corner and angle points of each area for which rights have been obtained shall be marked with semipermanent markers except where there is an approved existing property

marker. Temporary markers shall be placed at points on alignment. The points on alignment shall be marked at stations so that intervals between points do not exceed 200 feet.

#### 1.3.2 Survey Markers

All markers shall be installed in an area prior to its use and they shall be available for reference during and upon completion of use of the area. Where approved existing property markers are found, a witness stake, as specified in Subparagraph, "Semipermanent Markers" below, shall be provided. If the types of markers specified hereinafter cannot be used, other types, as approved by the Contracting Officer, shall be provided.

##### 1.3.2.1 Semipermanent Markers

The markers shall be a steel rod one-half inch in diameter and four (4) feet long. The steel rod shall be driven vertically into the ground so that the top is flush with the finished ground surface. Each marker shall be witnessed by a 2" x 2" yellow stake extending two (2) feet above the ground surface and driven into the ground until stable, with not less than one (1) foot penetration.

##### 1.3.2.2 Temporary Markers

Markers shall be 2" x 2", red-colored, wood hub stakes driven into the ground until stable (not less than one (1) foot penetration) with two (2) feet projecting above the ground surface. If the period in which temporary markers are to be in place exceeds one (1) construction season, a more permanent type of marker, as approved, shall be provided.

PART 2 PRODUCTS (NOT APPLICABLE)

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## SECTION 01130

## ENVIRONMENTAL PROTECTION

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 261 Identification and listing of Hazardous Waste

## ENGINEERING MANUALS (EM)

EM 385-1-1 (3 Sept. 1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual

## WISCONSIN DEPARTMENT OF TRANSPORTATION (WDOT)

WDOT 1996 (1996) Standard Specifications for Highway and Structure Construction

## 1.2 DEFINITIONS

Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of plant or animal communities; or degrade the environment from an aesthetic, cultural or historic perspective. Environmental protection is the prevention/control of pollution and habitat disruption that may occur during construction. The control of environmental pollution and damage requires consideration of air, water, land, biological and cultural resources (archaeological and historic resources); and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive materials; and other pollutants.

## 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01130 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Environmental Protection Plan; G-AOF.

Submit in writing an Environmental Protection Plan within ten (10) calendar days after receipt of Notice to Proceed. See Article titled ENVIRONMENTAL

PROTECTION PLAN for details.

#### 1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor shall be knowledgeable of and comply with all applicable Federal, State, and local laws, regulations, permits and licenses concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations. Note any unique requirements for this contract in the environmental pollution control plan. Also see Clauses titled "CLEAN AIR AND WATER" and "PERMITS AND RESPONSIBILITIES." The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction.

##### 1.4.1 Protection of Features

This section supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. The Contractor shall prepare a list of features requiring protection under the provisions of the contract clause which are not specially identified on the drawings as environmental features requiring protection. The Contractor shall confine its activities to areas defined by the drawings and specifications. The Contractor shall protect those environmental features, indicated specially on the drawings or in the specifications, in spite of interference which their preservation may cause to the Contractor's work under the contract.

##### 1.4.2 Permits

The Contractor shall obtain any necessary permits and licenses that have not been obtained by the Government. This section supplements the Contractor's responsibility under the contract clause PERMITS AND RESPONSIBILITIES to the extent that the Government has already obtained environmental permits. The Contractor shall comply with the terms, and conditions of these permits. The Contractor shall also comply with other environmental commitments made by the Government, including any environmental documents pertaining to the project.

##### 1.4.3 Special Environmental Requirements

The Contractor shall comply with the special environmental requirements included in Section 01999. These special environmental requirements are an outgrowth of environmental commitments made by the Government during the project development.

##### 1.4.4 Environmental Assessment of Contract Deviations

The Contract specifications have been prepared to comply with the special conditions and mitigation measures of an environmental nature which were established during the planning and development of this project. The Contractor is advised that deviations from the drawings or specifications (e.g., proposed alternate borrow areas, disposal areas, staging areas, alternate access routes, etc.) could result in the requirement for the Government to reanalyze the project from an environmental standpoint. Deviations from the construction methods and procedures indicated by the plans and specifications which may have an environmental impact will require an extended review, processing, and approval time by the Government. The Contracting Officer reserves the right to disapprove alternate methods,

even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

#### 1.5 ENVIRONMENTAL PROTECTION PLAN

The Contractor shall submit an Environmental Protection Plan for review and acceptance by the Contracting Officer. The Government will consider an interim plan for the first 30 days of operations. However, the Contractor shall furnish an acceptable final plan not later than 30 calendar days after receipt of the Notice to Proceed. Acceptance is conditional and is predicated upon satisfactory performance during construction. The Government reserves the right to require the Contractor to make changes in the Environmental Protection Plan or operations if the Contracting Officer determines that environmental protection requirements are not being met. The plan shall detail the actions which the Contractor shall take to comply with all applicable Federal, State, and local laws and regulations concerning environmental protection and pollution control and abatement, as well as the additional specific requirements of this contract. The Contractor shall refer to the applicable existing environmental documentation to ensure that the natural, historic, and cultural resources specific or unique to this project are protected. Any necessary coordination with and/or notices to all interested agencies and the public have been made by the Government for environmental documentation prepared by the Government. Copies of the documents are available for review at the offices of the Detroit District, Programs and Project Management Division, Environmental Analysis Branch, 7th Floor, 477 Michigan Avenue, Detroit, MI 48226. No physical work at the site shall begin prior to acceptance of the Contractor's plan or an interim plan covering the work to be performed. The environmental protection plan shall include, but not be limited to, the following:

##### 1.5.1 Federal, State and Local Laws and Regulations

The Contractor shall be knowledgeable of all Federal, State and local environmental laws and regulations which apply to the construction operations under the Contract and shall list any unique requirements applicable to this contract as part of the Environmental Protection Plan.

##### 1.5.2 Spill Control Plan

The Contractor shall include as part of the Environmental Protection Plan, a Spill Control Plan. The plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by the Emergency Response and Community Right-to-Know Act or regulated under State or local laws or regulations. The Spill Control Plan supplements the requirements of EM 385-1-1. This plan shall include as a minimum:

- a. The name of the individual who will be responsible for implementing and supervising the containment and cleanup.
- b. Training requirements for Contractor's personnel and methods of accomplishing the training.
- c. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.

d. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.

e. The methods and procedures to be used for expeditious contaminant cleanup.

f. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity spill occurs. The plan shall contain a list of the required reporting channels and telephone numbers.

#### 1.5.3 Recycling and Waste Minimization Plan

The Contractor shall submit a Recycling and Waste Minimization Plan as a part of the Environmental Protection Plan. The plan shall detail the Contractor's actions to comply with the following recycling and waste minimization requirements:

a. The Contractor shall participate in State and local government sponsored recycling programs to reduce the volume of solid waste materials at the source.

#### 1.5.4 Contaminant Prevention Plan

As a part of the Environmental Protection Plan, the Contractor shall prepare a contaminant prevention statement identifying potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, water, or ground. The Contractor shall detail provisions to be taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials.

#### 1.5.5 Environmental Monitoring

The Contractor shall include in the plan the details of environmental monitoring requirements under the laws and regulations and a description of how this monitoring will be accomplished, including, but not limited to, monitoring of land, air, and water resources, including noise, odors and vibrations.

### PART 2 PRODUCTS (NOT APPLICABLE)

### PART 3 EXECUTION

#### 3.1 SPECIAL ENVIRONMENTAL PROTECTION REQUIREMENTS

##### 3.1.1 Work Area Limits

Prior to any construction, the Contractor shall mark the areas where the work is to be performed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible during darkness. The

Contractor shall convey to its personnel the purpose of marking and/or protection of all necessary objects.

### 3.1.2 Protection of Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features to be preserved, indicated and defined on the drawings submitted by the Contractor as a part of the Environmental Protection Plan shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques. Vegetated soil surfaces disturbed by construction activities shall be re-vegetated as soon as practicable after completing operations in the disturbed area.

#### 3.1.2.1 Tree Protection

No ropes, cables, or guys shall be fastened to or attached to any tree(s) for anchorage unless specifically authorized by the Contracting Officer. Where such special use is permitted, the Contractor shall provide effective protection to prevent damage to the tree and other land and vegetative resources. Unless specifically authorized by the Contracting Officer, no construction equipment or materials shall be placed or used within the drip line of trees shown on the drawings to be saved. No excavation or fill shall be permitted within the drip line of trees to be saved except as shown on the drawings.

### 3.1.3 U.S. Department of Agriculture (USDA) Quarantined Considerations

The Contractor shall thoroughly clean all construction equipment at the prior job site in a manner that ensures all residual soil is removed and that egg deposits from plant pests are not present to prevent the spread of non-indigenous and/or pest species. The Contractor shall consult with the USDA Plant Protection and Quarantine (USDA - PPQ) jurisdictional office for additional cleaning requirements that may be necessary.

#### 3.1.3.1 Control of Non-Indigenous Aquatic Nuisance Species

The Contractor shall conduct diligent watercraft operating practices to prevent the spread of Non-Indigent Aquatic Nuisance Species (ANS). Such practices shall include, but not be limited to, cleaning equipment on-site to prevent the spread of seeds, eggs, larvae, or other dispersal vectors (e.g. do not transport soil and plant matter from one location to another); and discharging or exchanging ballast water or other water from a vessel of any type only at a location where the chances for survival of ANS are minimal, such as at cold, deep regions of Lake Michigan which are far from shore.

### 3.1.5 Commercial Borrow

Prior to bringing commercially obtained borrow material on site, the Contractor shall provide the Contracting Officer with the location of the pit or pits, the names of the owners and operators, and the types and estimated quantities of materials to be obtained from each source.

#### 3.1.4 Disposal of Waste Materials

Disposal of any materials, waste, effluents, trash, garbage, [unsatisfactory excavated materials], oil, grease, chemicals, etc., in areas adjacent to streams, rivers, or lakes and in areas not authorized for waste disposal shall not be permitted. If any waste material is dumped or

placed in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, ground which has become contaminated through the fault or negligence of the Contractor shall be excavated, disposed of as directed by the Contracting Officer, and replaced with suitable fill material compacted and finished with topsoil and planted as required to re-establish vegetation, all at the expense of the Contractor. Disposal of waste, trash and other materials off the project site shall be in accordance with all applicable Federal, State, and local laws, rules and regulations. Removed vegetation, including trees, shall be put to beneficial reuse and not placed into landfills.

#### 3.1.4.1 Disposal of Solid Wastes

Solid waste is rubbish, debris, waste materials, garbage, and other discarded solid materials (excluding clearing debris and hazardous waste as defined in following paragraphs). Solid waste shall be placed in containers and disposed of on a regular schedule. All handling and disposal shall be conducted in such a way as to prevent spillage and contamination. The Contractor shall transport all solid waste off Government property and dispose in compliance with Federal, State, and local requirements.

#### 3.1.4.2 Disposal of Chemical Waste

Chemical waste shall be stored in corrosion resistant containers, removed from the work area and disposed of in accordance with Federal, State, and local laws, rules and regulations.

#### 3.1.4.3 Spillages

Special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, ashes, sawdust, waste washings, herbicides and insecticides, rubbish or sewage, and other pollutants from entering public waters.

#### 3.1.5 Clearing Debris

Clearing debris is trees, tree stumps, tree trimmings, and shrubs, and leaves, vegetative matter, excavated natural materials (e.g., dirt, sand, and rock), and demolition products (e.g., brick, concrete, glass, and metals).

a. The Contractor shall collect trees, tree stumps, tree trimmings, shrubs, leaves, and other vegetative matter; and shall transport from Government property for proper disposal in compliance with Federal, State, and local requirements. The Contractor shall segregate the matter where appropriate for proper disposal. Untreated and unpainted scrap lumber may be disposed of with this debris where appropriate.

b. Excavated natural materials shall be placed in the designated area on the drawings.

c. Demolition products shall be transported from Government property for proper disposal in compliance with Federal, State, and local requirements.

### 3.1.6 Disposal of Contractor Generated Hazardous Wastes

Hazardous wastes are hazardous substances as defined in 40 CFR 261, or as defined by applicable State and local regulations. Hazardous waste generated by construction activities shall be removed from the work area and be disposed in compliance with Federal, State, and local requirements. The Contractor shall segregate hazardous waste from other materials and wastes, and shall protect it from the weather by placing it in a safe covered location; precautionary measures against accidental spillage such as berming or other appropriate measures shall be taken. Hazardous waste shall be removed from Government property within 60 days. Hazardous waste shall not be dumped onto the ground, into storm sewers or open water courses, or into the sanitary sewer system. A copy of the manifest shall be provided to the Contracting Officer for any hazardous waste disposed of under this contract.

### 3.1.7 Fuels and Lubricants

Fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants and waste oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with Federal, State, and local laws and regulations.

### 3.1.8 Hydrocarbons, Carbon Monoxide, and Oxides of Nitrogen and Sulfur

Vapor/gaseous emissions of hydrocarbons, carbon monoxide, oxides of nitrogen and sulfur oxides from equipment shall be controlled to Federal and State limits at all times.

### 3.1.9 Odors

Odors from all construction activities, processing and preparation of shall be controlled at all times.

### 3.1.10 Ground Vibrations

Ground vibrations from construction activities shall be controlled at all times.

### 3.1.14 Protection from Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize damage to the environment by noise. Construction equipment shall be fitted with noise control devices.

## 3.2 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

### 3.2.1 Discovered Historic, Archaeological, and Cultural Resources

If, during construction activities, items are observed that may have historic or archaeological value (e.g., human remains or associated objects, or artifacts are discovered), such items shall be protected in place and the observations shall be reported immediately to the Contracting Officer so that the District Archaeologist may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to, or the destruction of, these resources. The Contractor shall prevent its employees from trespassing on,



removing, or otherwise disturbing such resources.

### 3.3 PROTECTION OF WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters.

#### 3.3.1 Wastewater

Wastewater directly derived from construction or occurring as a result of any other construction activities shall not be discharged before being treated to remove pollutants. Wastewater shall not be allowed to enter streams, rivers, or lakes unless it meets Federal and State water quality criteria.

### 3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

#### 3.4.1 Protection of Fish, Wildlife and Flora

The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish, wildlife and flora. Species that require specific attention along with measures for their protection shall be listed by the Contractor prior to beginning construction operations. See Subparagraph titled "Environmental Protection Plan."

### 3.5 PROTECTION OF AIR RESOURCES

Special management techniques as set out below shall be implemented to control air pollution by the construction activities. These techniques supplement the requirements of Federal, State, and local laws and regulations; and the safety requirements under this Contract. If any of the following techniques conflict with the requirements of Federal, State, or local laws or regulations, or safety requirements under this contract, then those requirements shall be followed in lieu of the following.

#### 3.5.1 Particulates

Airborne particulates, including dust particles, aerosols, and gaseous by-products from construction activities and processing and preparation of materials, shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, disposal sites, borrow areas, and all other work areas free from airborne dust which would cause a hazard or nuisance.

### 3.6 INSPECTION

If the Contracting Officer notifies the Contractor in writing of any observed noncompliance with contract requirements or Federal, State, or local laws, regulations, or permits, the Contractor shall inform the Contracting Officer of proposed corrective action and take such action to correct the noncompliance. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action is taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension.

### 3.7 MAINTENANCE OF POLLUTION CONTROL FACILITIES

The Contractor shall maintain all constructed pollution control facilities and portable pollution control devices for the duration of the Contract or for the length of time construction activities create the particular pollutant.

### 3.8 TRAINING OF CONTRACTOR PERSONNEL

Contractor personnel shall be trained in environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel monthly.

The training and meeting agenda shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, installation and care of facilities (vegetative covers, etc.), and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants, shall also be discussed. Other items required to be discussed shall include recognition and protection of archaeological sites, artifacts, and historic structures.

### 3.9 POST CONSTRUCTION CLEANUP OR OBLITERATION

The Contractor shall obliterate all signs of temporary facilities such as haul roads, work area, structures, stock piles of excess or waste materials, fencing, buoys, stakes, or other vestiges of construction within the work, storage and access areas or as directed by the Contracting Officer. Except for surfaced areas, the areas shall be restored to near natural conditions which will permit the growth of vegetation thereon. In areas where restoration to near natural conditions is not required, surfaces shall be evenly and smoothly dressed, sloped to drain, and the edges of the restored area graded to be flush with the surrounding existing grade even if original contours are not restored. All damaged non-surfaced areas shall be restored by topsoiling, fertilizing, seeding and mulching, unless otherwise specified or directed. The topsoiling, fertilizing, seeding, and mulching shall be in accordance with the applicable provisions of WDOT 1996, provisions of Sections 624 through 630

### 3.10 RESTORATION OF LANDSCAPE

The Contractor shall restore all landscape features damaged or destroyed during construction operations inside and outside the limits of the approved work areas. Such restoration shall be in accordance with the Contractor's submitted plan, as approved by the Contracting Officer. The work shall be accomplished at the Contractor's expense.

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## DIVISION 01 - GENERAL REQUIREMENTS

## SECTION 01312A

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## SECTION 01312A

## QUALITY CONTROL SYSTEM (QCS)

## PART 1 GENERAL

## 1.1 GENERAL

The Government will use the Resident Management System for Windows (RMS) to assist in its monitoring and administration of this contract. The Contractor shall use the Government-furnished Construction Contractor Module of RMS, referred to as QCS, to record, maintain, and submit various information throughout the contract period. This joint Government-Contractor use of RMS and QCS will facilitate electronic exchange of information and overall management of the contract. QCS provides the means for the Contractor to input, track, and electronically share information with the Government in the following areas:

- Administration
- Finances
- Quality Control
- Submittal Monitoring
- Scheduling
- Import/Export of Data

## 1.1.1 Correspondence and Electronic Communications

For ease and speed of communications, both Government and Contractor will, to the maximum extent feasible, exchange correspondence and other documents in electronic format. Correspondence, pay requests and other documents comprising the official contract record shall also be provided in paper format, with signatures and dates where necessary. Paper documents will govern, in the event of discrepancy with the electronic version.

## 1.1.2 Other Factors

Particular attention is directed to Contract Clause, "Schedules for Construction Contracts", Contract Clause, "Payments", Section 01330, SUBMITTAL PROCEDURES, and Section 01451, CONTRACTOR QUALITY CONTROL, which have a direct relationship to the reporting to be accomplished through QCS.

Also, there is no separate payment for establishing and maintaining the QCS database; all costs associated therewith shall be included in the contract pricing for the work.

## 1.2 QCS SOFTWARE

QCS is a Windows-based program that can be run on a stand-alone personal computer or on a network. The Government will make available the QCS software to the Contractor after award of the construction contract. Prior to the Pre-Construction Conference, the Contractor shall be responsible to download, install and use the latest version of the QCS software from the Government's RMS Internet Website. Upon specific justification and request by the Contractor, the Government can provide QCS on 3-1/2 inch high-density diskettes or CD-ROM. Any program updates of QCS will be made available to the Contractor via the Government RMS Website as they become available.

### 1.3 SYSTEM REQUIREMENTS

The following listed hardware and software is the minimum system configuration that the Contractor shall have to run QCS:

#### **Hardware**

IBM-compatible PC with 200 MHz Pentium or higher processor

32+ MB RAM

4 GB hard drive disk space for sole use by the QCS system

3 1/2 inch high-density floppy drive

Compact disk (CD) Reader

Color monitor

Laser printer compatible with HP LaserJet III or better, with minimum 4 MB installed memory.

Connection to the Internet, minimum 28 BPS

#### **Software**

MS Windows 95 or newer version operating system (MS Windows NT 4.0 or newer is recommended)

Word Processing software compatible with MS Word 97 or newer

Internet browser

The Contractor's computer system shall be protected by virus protection software that is regularly upgraded with all issued manufacturer's updates throughout the life of the contract.

Electronic mail (E-mail) compatible with MS Outlook

### 1.4 RELATED INFORMATION

#### 1.4.1 QCS User Guide

After contract award, the Contractor shall download instructions for the installation and use of QCS from the Government RMS Internet Website; the Contractor can obtain the current address from the Government. In case of justifiable difficulties, the Government will provide the Contractor with a CD-ROM containing these instructions.

#### 1.4.2 Contractor Quality Control(CQC) Training

The use of QCS will be discussed with the Contractor's QC System Manager during the mandatory CQC Training class.

### 1.5 CONTRACT DATABASE

Prior to the pre-construction conference, the Government shall provide the Contractor with basic contract award data to use for QCS. The Government will provide data updates to the Contractor as needed, generally by files

attached to E-mail. These updates will generally consist of submittal reviews, correspondence status, QA comments, and other administrative and QA data.

#### 1.6 DATABASE MAINTENANCE

The Contractor shall establish, maintain, and update data for the contract in the QCS database throughout the duration of the contract. The Contractor shall establish and maintain the QCS database at the Contractor's site office. Data updates to the Government shall be submitted by E-mail with file attachments, e.g., daily reports, schedule updates, payment requests. If permitted by the Contracting Officer, a data diskette or CD-ROM may be used instead of E-mail (see Paragraph DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM). The QCS database typically shall include current data on the following items:

##### 1.6.1 Administration

###### 1.6.1.1 Contractor Information

The database shall contain the Contractor's name, address, telephone numbers, management staff, and other required items. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver Contractor administrative data in electronic format via E-mail.

###### 1.6.1.2 Subcontractor Information

The database shall contain the name, trade, address, phone numbers, and other required information for all subcontractors. A subcontractor must be listed separately for each trade to be performed. Each subcontractor/trade shall be assigned a unique Responsibility Code, provided in QCS. Within 14 calendar days of receipt of QCS software from the Government, the Contractor shall deliver subcontractor administrative data in electronic format via E-mail.

###### 1.6.1.3 Correspondence

All Contractor correspondence to the Government shall be identified with a serial number. Correspondence initiated by the Contractor's site office shall be prefixed with "S". Letters initiated by the Contractor's home (main) office shall be prefixed with "H". Letters shall be numbered starting from 0001. (e.g., H-0001 or S-0001). The Government's letters to the Contractor will be prefixed with "C".

###### 1.6.1.4 Equipment

The Contractor's QCS database shall contain a current list of equipment planned for use or being used on the jobsite, including the most recent and planned equipment inspection dates.

###### 1.6.1.5 Management Reporting

QCS includes a number of reports that Contractor management can use to track the status of the project. The value of these reports is reflective of the quality of the data input, and is maintained in the various sections of QCS. Among these reports are: Progress Payment Request worksheet, QA/QC comments, Submittal Register Status, Three-Phase Inspection checklists.

## 1.6.2 Finances

### 1.6.2.1 Pay Activity Data

The QCS database shall include a list of pay activities that the Contractor shall develop in conjunction with the construction schedule. The sum of all pay activities shall be equal to the total contract amount, including modifications. Pay activities shall be grouped by Contract Line Item Number (CLIN), and the sum of the activities shall equal the amount of each CLIN. The total of all CLINs equals the Contract Amount.

### 1.6.2.2 Payment Requests

All progress payment requests shall be prepared using QCS. The Contractor shall complete the payment request worksheet and include it with the payment request. The work completed under the contract, measured as percent or as specific quantities, shall be updated at least monthly. After the update, the Contractor shall generate a payment request report using QCS. The Contractor shall submit the payment requests with supporting data by E-mail with file attachment(s). If permitted by the Contracting Officer, a data diskette may be used instead of E-mail. A signed paper copy of the approved payment request is also required, which shall govern in the event of discrepancy with the electronic version.

## 1.6.3 Quality Control (QC)

QCS provides a means to track implementation of the 3-phase QC Control System, prepare daily reports, identify and track deficiencies, document progress of work, and support other contractor QC requirements. The Contractor shall maintain this data on a daily basis. Entered data will automatically output to the QCS generated daily report. The Contractor shall provide the Government a Contractor Quality Control (CQC) Plan within the time required in Section 01451, CONTRACTOR QUALITY CONTROL. Within seven calendar days of Government acceptance, the Contractor shall submit a data diskette or CD-ROM reflecting the information contained in the accepted CQC Plan: schedule, pay activities, features of work, submittal register, QC requirements, and equipment list.

### 1.6.3.1 Daily Contractor Quality Control (CQC) Reports.

QCS includes the means to produce the Daily CQC Report. The Contractor may use other formats to record basic QC data. However, the Daily CQC Report generated by QCS shall be the Contractor's official report. Data from any supplemental reports by the Contractor shall be summarized and consolidated onto the QCS-generated Daily CQC Report. Daily CQC Reports shall be submitted as required by Section 01451, CONTRACTOR QUALITY CONTROL. Reports shall be submitted electronically to the Government using E-mail or diskette within 24 hours after the date covered by the report. Use of either mode of submittal shall be coordinated with the Government representative. The Contractor shall also provide the Government a signed, printed copy of the daily CQC report.

### 1.6.3.2 Deficiency Tracking.

The Contractor shall use QCS to track deficiencies. Deficiencies identified by the Contractor will be numerically tracked using QC punch list items. The Contractor shall maintain a current log of its QC punch list items in the QCS database. The Government will log the deficiencies it has identified using its QA punch list items. The Government's QA punch

list items will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of both QC and QA punch list items.

#### 1.6.3.3 Three-Phase Control Meetings

The Contractor shall maintain scheduled and actual dates and times of preparatory and initial control meetings in QCS.

#### 1.6.3.4 Accident/Safety Tracking.

The Government will issue safety comments, directions, or guidance whenever safety deficiencies are observed. The Government's safety comments will be included in its export file to the Contractor. The Contractor shall regularly update the correction status of the safety comments. In addition, the Contractor shall utilize QCS to advise the Government of any accidents occurring on the jobsite. This brief supplemental entry is not to be considered as a substitute for completion of mandatory reports, e.g., ENG Form 3394 and OSHA Form 200.

#### 1.6.3.5 Features of Work

The Contractor shall include a complete list of the features of work in the QCS database. A feature of work may be associated with multiple pay activities. However, each pay activity (see subparagraph "Pay Activity Data" of paragraph "Finances") will only be linked to a single feature of work.

#### 1.6.3.6 QC Requirements

The Contractor shall develop and maintain a complete list of QC testing, transferred and installed property, and user training requirements in QCS. The Contractor shall update all data on these QC requirements as work progresses, and shall promptly provide this information to the Government via QCS.

#### 1.6.4 Submittal Management

The Government will provide the initial submittal register, ENG Form 4288, SUBMITTAL REGISTER, in electronic format. Thereafter, the Contractor shall maintain a complete list of all submittals, including completion of all data columns. Dates on which submittals are received and returned by the Government will be included in its export file to the Contractor. The Contractor shall use QCS to track and transmit all submittals. ENG Form 4025, submittal transmittal form, and the submittal register update, ENG Form 4288, shall be produced using QCS. RMS will be used to update, store and exchange submittal registers and transmittals, but will not be used for storage of actual submittals.

#### 1.6.5 Schedule

The Contractor shall develop a construction schedule consisting of pay activities, in accordance with Contract Clause "Schedules for Construction Contracts". This schedule shall be input and maintained in the QCS database either manually or by using the Standard Data Exchange Format (SDEF) (see Section 01320A PROJECT SCHEDULE). The updated schedule data shall be included with each pay request submitted by the Contractor.



#### 1.6.6 Import/Export of Data

QCS includes the ability to export Contractor data to the Government and to import submittal register and other Government-provided data, and schedule data using SDEF.

#### 1.7 IMPLEMENTATION

Contractor use of QCS as described in the preceding paragraphs is mandatory. The Contractor shall ensure that sufficient resources are available to maintain its QCS database, and to provide the Government with regular database updates. QCS shall be an integral part of the Contractor's management of quality control.

#### 1.8 DATA SUBMISSION VIA COMPUTER DISKETTE OR CD-ROM

The Government-preferred method for Contractor's submission of updates, payment requests, correspondence and other data is by E-mail with file attachment(s). For locations where this is not feasible, the Contracting Officer may permit use of computer diskettes or CD-ROM for data transfer. Data on the disks or CDs shall be exported using the QCS built-in export function. If used, diskettes and CD-ROMs will be submitted in accordance with the following:

##### 1.8.1 File Medium

The Contractor shall submit required data on 3-1/2 inch double-sided high-density diskettes formatted to hold 1.44 MB of data, capable of running under Microsoft Windows 95 or newer. Alternatively, CD-ROMs may be used. They shall conform to industry standards used in the United States. All data shall be provided in English.

##### 1.8.2 Disk or CD-ROM Labels

The Contractor shall affix a permanent exterior label to each diskette and CD-ROM submitted. The label shall indicate in English, the QCS file name, full contract number, contract name, project location, data date, name and telephone number of person responsible for the data.

##### 1.8.3 File Names

The Government will provide the file names to be used by the Contractor with the QCS software.

#### 1.9 MONTHLY COORDINATION MEETING

The Contractor shall update the QCS database each workday. At least monthly, the Contractor shall generate and submit an export file to the Government with schedule update and progress payment request. As required in Contract Clause "Payments", at least one week prior to submittal, the Contractor shall meet with the Government representative to review the planned progress payment data submission for errors and omissions. The Contractor shall make all required corrections prior to Government acceptance of the export file and progress payment request. Payment requests accompanied by incomplete or incorrect data submittals will be returned. The Government will not process progress payments until an acceptable QCS export file is received.

## 1.10 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the requirements of this specification. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

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## SECTION 01330

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## SECTION 01330

## SUBMITTAL PROCEDURES

## PART 1 GENERAL

## 1.1 SUMMARY

## 1.1.1 Government-Furnished Information

Submittal register database and submittal management program will be delivered to the contractor, by contracting officer on 3 1/2 inch disk. Register database will have the following fields completed, to the extent that will be required by the Government during subsequent usage.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD No. and type, e.g. SD-04 Drawings) required in each specification section.

Column (e): Lists one principal paragraph in specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting project requirements.

Column (f): Indicate approving authority for each submittal. A "G" indicates approval by contracting officer; a blank indicates approval by QC manager.

The database and submittal management program will be extractable from the disk furnished to contractor, for operation on contractor's IBM compatible personal computer with 640kb RAM, a hard drive, and 3 1/2 inch high density floppy disk drive.

## 1.2 DEFINITIONS

## 1.2 Submittal

Shop drawings, product data, samples, and administrative submittals presented for review and approval. Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) and "FAR 52.236-21, Specifications and Drawings for Construction," paragraphs (d), (e), and (f) apply to all "submittals."

## 1.3 Types of Submittals

All submittals are classified as indicated in paragraph "Submittal Descriptions (SD)". Submittals also are grouped as follows:

- a. Shop drawings: As used in this section, drawings, schedules, diagrams, and other data prepared specifically for this contract, by contractor or through contractor by way of subcontractor, manufacturer, supplier, distributor, or other lower tier contractor, to illustrate portion of work.
- b. Product data: Preprinted material such as illustrations, standard

schedules, performance charts, instructions, brochures, diagrams, manufacturer's descriptive literature, catalog data, and other data to illustrate portion of work, but not prepared exclusively for this contract.

- c. Samples: Physical examples of products, materials, equipment, assemblies, or workmanship that are physically identical to portion of work, illustrating portion of work or establishing standards for evaluating appearance of finished work or both.
- d. Administrative submittals: Data presented for reviews and approval to ensure that administrative requirements of project are adequately met but not to ensure directly that work is in accordance with design concept and in compliance with contract documents.

#### 1.4 Submittal Descriptions (SD)

##### SD-01 Preconstruction Submittals

Certificates of insurance  
Surety bonds  
List of proposed subcontractors  
List of proposed products  
Construction Progress Schedule  
Submittal schedule  
Schedule of values  
Health and safety plan  
Work plan  
Quality control plan  
Environmental protection plan

##### SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the contractor for integrating the product or system into the project.

Drawings prepared by or for the contractor to show how multiple systems and interdisciplinary work will be coordinated.

##### SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuing work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

## SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports

Daily checklists

Final acceptance test and operational test procedure

## SD-07 Certificates

Statements signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

## SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

## SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

As-built drawings

Special warranties

Posted operating instructions

Training plan

## 1.5 SUBMITTAL CLASSIFICATION

Submittals are identified with submittal description (SD) numbers and are classified as follows:

### 1.5.1 Government Approved

Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of the Contract Clause entitled "Specifications and Drawings for Construction," they are considered to be "shop drawings."

### 1.5.2 Designated Reviewers

The organization designated to perform the review for approval for items requiring Government approval (G) is identified by acronym in the REVIEWER column on the SUBMITTAL REGISTER, ENG FORM 4288 or ENG FORM 4288 (RMS). Following is a list of the acronyms used and their full description:

AOF = The Resident U.S. Army Corps of Engineers Area Office

RED = Real Estate Division, Detroit District, U.S. Army Corps of Engineers

AEN = The Architect/Engineer firm that designed the project

ECD = Engineering and Construction Division, Detroit District, U.S. Army Corps of Engineers

## 1.6 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor Quality Control (CQC) requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

## 1.7 DISAPPROVED SUBMITTALS

When a submittal is returned to the Contractor and marked "DISAPPROVED" or "APPROVED AS NOTED, REVISE AND RESUBMIT", the Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with the Contract Clause "Changes" shall be given promptly to the Contracting Officer.

## 1.8 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

## PART 2 PRODUCTS (Not Applicable)

## PART 3 EXECUTION3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Submittals shall be made in the required number of copies and to the applicable Area Office. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and stamped in accordance with ARTICLE titled STAMPS, and approved by the CQC representative. Each respective transmittal form (ENG FORM 4025) shall be signed and dated by the CQC representative certifying that the accompanying submittal complies with the contract requirements. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

## 3.2 SUBMITTAL REGISTER (ENG FORM 4288)

In Section 01999, is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor will also be given the submittal register as a diskette containing the computerized ENG Form 4288 and instructions on the use of the diskette. Columns "d" through "r" have been completed by the Government; the Contractor shall complete columns "a" and "s" through "u" and submit the forms (hard copy plus associated electronic file) to the Contracting Officer for approval within 10 calendar days after receipt of the Notice to Proceed. The Contractor shall keep this diskette up-to-date and shall submit it to the Government together with the monthly payment request. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated.

## 3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 10 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals. An additional 5 calendar days shall be allowed and shown on the register for review and approval of submittals for refrigeration and HVAC control systems.



### 3.4 TRANSMITTAL FORM (ENG FORM 4025)

The sample transmittal form (ENG Form 4025) enclosed in SECTION 01999 shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor, or may be copied from the enclosed form. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

### 3.5 SUBMITTAL PROCEDURE

Submittals shall be made as follows:

#### 3.5.1 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

### 3.6 CONTROL OF SUBMITTALS

The Contractor shall carefully control its procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

### 3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. The distribution of approved copies will be as specified in the Clause titled "SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION".

### 3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals.

### 3.9 RESERVATION OF RIGHTS

The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

## 3.10 STAMPS

Stamps, approximately 2 inches high by 3 inches wide, and similar to the following, shall be used by the Contractor on the submittal data to validate approval:

CONTRACTOR  (Firm Name)
  _____ Approved
  _____ Approved with corrections as noted on submittal data and/or attached sheets(s).
  SIGNATURE: _____
TITLE: _____
DATE: _____

## 3.11 ACCIDENT PREVENTION PLAN

The format of the Contractor's Accident Prevention Plan shall be in accordance with APPENDIX A, MINIMUM BASIC OUTLINE FOR ACCIDENT PREVENTION PLAN of the SAFETY AND HEALTH REQUIREMENTS MANUAL, EM 385 1-1, 3 Sept 1996.

A copy of NCE FORM 129 is included in SECTION 01999 for use in preparing activity hazard analysis documentation.

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## SECTION 01451

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## SECTION 01451

## CONTRACTOR QUALITY CONTROL

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (1995) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock Used in Engineering Design and Construction

ASTM E 329 (1995c) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

Quality Control Plan; G-AOF

At least ten (10) calendar days prior to commencing work submit a Quality Control Plan.

Preparatory Inspection Checklist

Within 48 hours after any preparatory phase meeting submit the original preparatory inspection checklist.

Initial Inspection Checklist

Within 48 hours after any preparatory phase meeting submit the original preparatory inspection checklist.

Daily Inspection Reports

Within 24 hours following any previous calendar day submit the original daily inspection report.

CQC System Manager; G-AOF

At least ten (10) calendar days prior to commencing work submit the

qualification of the CQC manager.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.1 GENERAL

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with Clause titled "INSPECTION OF CONSTRUCTION." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both on-site and off-site, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

3.2 QUALITY CONTROL PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 30 days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of Clause titled "INSPECTION OF CONSTRUCTION." The plan shall identify personnel, procedures, control, instructions, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Content of the CQC Plan

The CQC plan shall include, as a minimum, the following to cover all construction operations, both on-site and off-site, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC system manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager

shall issue letters of direction to all other various quality control representatives outlining duties, authorities and responsibilities. Copies of these letters shall also be furnished to the Government.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators suppliers, and purchasing agents. These procedures shall be in accordance with SECTION 01330, "SUBMITTAL PROCEDURES".

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)

f. Procedures for tracking preparatory, initial, and follow-up control phases, including documentation.

g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may be generally considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list shall be as agreed upon during the coordination meeting.

### 3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in its CQC plan and operations including removal of personnel, as necessary, to obtain the quality specified.

### 3.2.4 Notification of Changes

After acceptance of the CQC plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

## 3.3 COORDINATION MEETING

Immediately after adjournment of the required Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the Quality Control Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC plan shall be submitted in draft form for a review a minimum of 3 working days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities,

administration of the system for both on-site and off-site work, and the interrelationship of the Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting will be prepared by the Government and are to be signed by both the Contractor and the Contracting Officer or the Contracting Officer's Representative. The minutes shall be separate from the Preconstruction Conference minutes and shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

#### 3.3.1 Finalize CQC Plan

Immediately following the Preconstruction Conference, the Contractor shall finalize the CQC plan, taking into account comments made at the conference, and shall formally submit the CQC plan for acceptance. The Contractor shall allow up to 10 calendar days for review and acceptance of the finalized submittal.

### 3.4 QUALITY CONTROL ORGANIZATION

#### 3.4.1 General

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

#### 3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the on site work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. This CQC System Manager shall be a construction person with a minimum of 3 years in related work. This CQC system manager shall be on site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned as System Manager but may have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

#### 3.4.3 Additional Requirements

In addition to the above experience and education requirements the CQC System Manager shall have completed the course titled "Construction Quality Management For Contractors". This course is periodically offered at one or more of the Area Offices within the District.

#### 3.4.4 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times that the work related to the applicable skill is ongoing. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

### 3.5 SUBMITTALS

Submittals shall be as specified in SECTION 01330, titled "SUBMITTAL PROCEDURES". The CQC organization shall be responsible for certifying that all submittals are in compliance with the contract requirements.

### 3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors, complies with the requirements of the contract. The controls shall be adequate to cover all construction operations and will be keyed to the proposed construction sequence. The controls shall include at least three phases of control to be conducted by the CQC system manager for all definable features of work, as follows:

#### 3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 24 hours in advance of beginning any of the required action of the preparatory control phase. This phase shall include a meeting conducted by the CQC system manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature.



The results of the preparatory phase actions shall be documented by a completed Preparatory Inspection Checklist and by separate minutes prepared by the CQC system manager and attached to the daily QC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

### 3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of preliminary work to ensure that it is in compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. A completed initial inspection checklist of this phase shall be prepared by the CQC system manager and attached to the daily QC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work on-site, or any time acceptable specified quality standards are not being met.

### 3.6.3 Follow-up Phase

Daily checks shall be performed to assure continuing compliance with contract requirements until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

### 3.6.4 Implementation of Government Resident Management System (RMS)

The Contractor shall utilize the Government-furnished CQC Management Report, NCE Form 63 for its daily reports. (Copy enclosed in SECTION 01999). Other Contractor desired reporting forms may be used in addition to this form. The Contractor shall use a government-furnished RMS CQC computer module for managing the quality control for this project. On the Government-furnished Input Forms in SECTION 01999 for use with the RMS, the Contractor shall provide the following information:

- (1) Prime Contractor staffing

(2) letter codes which the Contractor wishes to use in addition to those supplied with the program libraries. A list of current existing codes is provided in SECTION 01999.

(3) subcontractor information showing trade, name, address, and insurance expiration dates

(4) Definable features of work from a Government provided dictionary (may be expanded by the Contractor, as approved).

(5) Pay activity and activity information, including minimum and maximum durations for each activity on a separate listing. The sum of all activity values shall equal the contract amount and, all Bid Items and Additives shall be separately identified, in accordance with the BIDDING SCHEDULE. Bid Items may include multiple activities, but activities may only be assigned to one such Bid Item. All of the data listed in this Subpart 6 shall be provided and the RMS CQC module shall be completed to the satisfaction of the Contracting Officer prior to any contract payments (except payments for bonds, insurance and/or mobilization as approved by the Contracting Officer) and shall be updated as required.

(6) Required Quality Control tests (as applicable) tied to individual activities. The QC Reports/QC Requirements function of the RMS QC Module will be used to meet the requirements for tracking of verification and acceptance testing specified in the paragraph titled "Content of the CQC Plan".

(7) Submittal information relating to specification section, bid item number, description, activity number, review period and expected procurement period

(8) User schooling information (as applicable).

The above items shall be incorporated into the required submittal for the Contractor's Quality Control Plan required in the paragraph titled "QUALITY CONTROL PLAN" of this Section.

a. During the course of the contract, the Contractor will receive various Quality Assurance comments from the Government that will reflect corrections needed to Contractor activities or reflect outstanding or future items needing the attention of the Contractor. The Contractor shall acknowledge receipt of these comments by specific number reference on its Daily CQC Report, and will also reflect on his Daily CQC Report when these items are specifically completed or corrected to permit Government verification. The contractor will use the QC COMMENTS function of the RMS QC Module to meet the requirements for tracking construction deficiencies as specified in paragraph titled, "Content of the CQC Plan".

b. The Contractor's schedule system shall include, as specified and separate activities, all Preparatory Phase Meetings (inspections); all O&M Manuals (as applicable) and all Test Plans of Electrical and Mechanical Equipment or Systems that require validation testing or instructions to Contracting Officer Representatives (as applicable).

### 3.6.5 Additional Preparatory and Initial Phases

Additional preparatory and initial phases may be conducted on the same definable features of work as determined by the Government if the quality of on-going work is unacceptable; or if there are changes in the applicable QC staff or in the on-site production supervision or work crew; or if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

## 3.7 TESTS

### 3.7.1 Testing Procedures

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test, shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and disapproval of the test facility for this contract.

### 3.7.2 Testing Laboratories

#### 3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

#### 3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will

be assessed a charge of \$3,000.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

### 3.7.3 On-site Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

### 3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Corps of Engineers Division Laboratory, f.o.b., at the following address:

Waterways Experiment Station  
3909 Halls Ferry Road  
Vicksburg, MS 39180-6199

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

## 3.8 COMPLETION INSPECTION

### 3.8.1 Punch-Out Inspection

At the completion of all work the CQC system manager shall conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved plans and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph "DOCUMENTATION" below, and shall include the estimated date by which the deficiencies will be corrected. The CQC system manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final Inspection.

### 3.8.2 Pre-Final Inspection

The Government will perform this inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

### 3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting

Officer's Representative shall be in attendance at this inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptable complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

### 3.9 DOCUMENTATION

The Contractor shall maintain Daily Inspection Reports of quality control operations, activities, and tests performed, including the work of subcontractors. These records shall be on an acceptable form and shall include factual evidence that required quality control activities and/or tests have been performed, including but not limited to the following:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed today, giving location, description, and by whom. For dredging projects, the report shall always include the character and types of materials removed. Whenever there is a significant change in the materials, the location of such change shall be included in the reports.
- d. Control activities performed with results and references to specifications/plan requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Quantity of materials received at the site, with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Identify submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. List instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered;

and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that the workmanship complies with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date(s) covered by the report, except that reports need not be submitted for days on which no work is performed. All calendar days shall be accounted for throughout the life of the contract. The first report following a period of no work shall be for that day and all the no-work days since the last reported work day. Reports shall be sequentially numbered for this project, signed and dated by the CQC system manager. The report from the CQC system manager shall include copies of reports prepared by all subordinate quality control personnel.

### 3.10 SAMPLE FORMS

Sample forms for the CQC Management Report, Preparatory Inspection Checklist, Initial Inspection Checklist, and other required reports and plans are enclosed in SECTION 01999. The Contractor shall tailor the checklists to include all reporting and quality control requirements specific to this project.

### 3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor at the site of the work, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor or subcontractor.

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## SECTION 01525

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## SECTION 01525

## SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z359.1 (1999) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components

## ASME INTERNATIONAL (ASME)

ASME B30.5 (2000) Mobile and Locomotive Cranes

ASME B30.8 (2000) Floating Cranes and Floating Derricks

ASME B30.22 (2000) Articulating Boom Cranes

## OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

29 CFR 1910.94 Ventilation

29 CFR 1910.120 Hazardous Waste Operations and Emergency Response

29 CFR 1910.146 Permit-required Confined Spaces

29 CFR 1926 Safety and Health Regulations for Construction

29 CFR 1926.65 Hazardous Waste Operations and Emergency Response

29 CFR 1926.500 Fall Protection

## U. S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1 (1996) Safety and Health Requirements Manual

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the

Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Site Safety & Health Officer Qualification (SSHO); G-AOF

Accident Prevention Plan (APP); G-AOF

Activity Hazard Analysis (AHA); G-AOF

Crane Critical Lift Plan; G-AOF

SD-06 Test Reports

Reports

Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

Accident Reports

Monthly Exposure Reports

Regulatory Citations and Violations

Crane Reports

Certificate of Compliance (Crane)

SD-07 Certificates

Confined Space Entry Permit

Submit one copy of each permit attached to each Daily Quality Control Report.

1.3 DEFINITIONS

a. High Visibility Accident. Any mishap which may generate publicity and/or high visibility.

b. Medical Treatment. Treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even through provided by a physician or registered personnel.

c. Multi-Employer Work Site (MEWS). A multi-employer work site, as defined by OSHA, is one in which many employers occupy the same site. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors.

d. Recordable Injuries or Illnesses. Any work-related injury or illness that results in:

(1) Death, regardless of the time between the injury and death, or the length of the illness;

(2) Days away from work;

- (3) Restricted work;
- (4) Transfer to another job;
- (5) Medical treatment beyond first aid;
- (6) Loss of consciousness; or
- (7) A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (1) through (6) above.

e. "USACE" property and equipment specified in USACE EM 385-1-1 should be interpreted as Government property and equipment.

f. Operating Envelope. The area surrounding any crane. Inside this "envelope" is the crane, the operator, riggers, rigging gear between the hook and the load, the load and the crane's supporting structure (ground), rail, etc.).

g. Site Safety and Health Officer (SSHO). The qualified or competent person who is responsible for the on-site safety and health cannot be the superintendent, even through the superintendent has safety inspection responsibilities as part of their duties. The SSHO can be part of the CQC organization, or be an independent individual/element appointed by official of the contractor.

#### 1.4 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this contract, work performed shall comply with USACE EM 385-1-1, and all federal, state, and local, laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements shall apply.

#### 1.5 DRUG PREVENTION PROGRAM

Conduct a proactive drug and alcohol use prevention program for all workers, prime and subcontractor, on the site. Ensure that no employee uses illegal drugs or consumes alcohol during work hours. Ensure there are no employees under the influence of drugs or alcohol during work hours. After accidents, collect blood, urine, or saliva specimens and test the injured and involved employees for the influence of drugs and alcohol. A copy of the test shall be made available to the Contracting Officer upon request.

#### 1.6 SITE QUALIFICATIONS, DUTIES AND MEETINGS

##### 1.6.1 Personnel Qualifications

##### 1.6.1.1 Site Safety and Health Officer (SSHO)

Site Safety and Health Officer (SSHO) shall be provided at the work site at all times to perform safety and occupational health management, surveillance, inspections, and safety enforcement for the Contractor. SSHO

shall be employed by the prime. SSHO qualifications in resume form with education certifications shall be submitted per paragraph 1.2.. The SSHO can be as follows:

Either the CQC person or the superintendent shall be equally qualified as the SSHO and shall be capable of performing the full duties of the SSHO during any very brief period of work when the SSHO is absent. To insure that safety and health conditions are maintained/enforced at all times, and a SSHO is present at all times, the Contractor shall designate an alternate to perform the safety and health requirements stated herein to cover any extended period when the SSHO can not be present, such as during absences for vacations/extended sickness, or when there are multiple shifts that required additional coverage. The alternate shall have the same qualifications/training as the SSHO.

The SSHO, and alternate shall meet the following experience qualifications/requirements:

Level 1:

- Worked on similar projects.
- 10-hour OSHA construction safety class or equivalent within last 3 years.
- Competent person training as needed.

1.6.1.2 Competent Person for the Health Hazard Control and Respiratory Protection Program

Provide a competent person meeting the requirements of EM 385-1-1 who is:

- a. Capable by education, specialized training and/or experience of anticipating, recognizing, and evaluating employee exposure to hazardous chemical, physical and biological agents in accordance with USACE EM 385-1-1, Section 6.
- b. Capable of specifying necessary controls and protective actions to ensure worker health.

1.6.1.3 Crane Operators

Crane operators shall meet the requirements in USACE EM 385-1-1, Appendix G.

1.6.2 Personnel Duties

1.6.2.1 Site Safety and Health Officer (SSHO)/Superintendent

- a. Conduct daily safety and health inspections and maintain a written log which includes area/operation inspected, date of inspection, identified hazards, recommended corrective actions, estimated and actual dates of corrections. Safety inspection logs shall be attached to the Contractors' daily [production][quality control] report.
- b. Conduct mishap investigations and complete required reports. Maintain the OSHA Form 300 and Daily Production reports for prime and sub-contractors.
- c. Maintain applicable safety reference material on the job site.
- d. Attend the pre-construction conference, pre-work meetings including

preparatory inspection meeting, and periodic in-progress meetings.

- e. Implement and enforce accepted APPS and AHAs.
- f. Maintain a safety and health deficiency tracking system that monitors outstanding deficiencies until resolution. A list of unresolved safety and health deficiencies shall be posted on the safety bulletin board.
- g. Ensure sub-contractor compliance with safety and health requirements.
- h. Other duties as identified per Specification Section 01451.

Failure to perform the above duties will result in dismissal of the SSHO, and/or CQC System Manager, and/or superintendent and a project work stoppage. The project work stoppage will remain in effect pending approval of a suitable replacement.

### 1.6.3 Meetings

#### 1.6.3.1 Preconstruction Conference

- a. The Contractor will be informed, in writing, of the date of the preconstruction conference. The purpose of the preconstruction conference is for the Contractor and the Contracting Officer's representatives to become acquainted and explain the functions and operating procedures of their respective organizations and to reach mutual understanding relative to the administration of the overall project's APP before the initiation of work.
- b. Contractor representatives who have a responsibility or significant role in accident prevention on the project shall attend the preconstruction conference. This includes the project superintendent, site safety and health officer, quality control supervisor, or any other assigned safety and health professionals who participated in the development of the APP (including the AHAs and special plans, program and procedures associated with it).
- c. The Contractor shall discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated activity hazard analyses (AHAs) that will be developed and implemented during the performance of the contract. This list of proposed AHAs will be reviewed at the conference and an agreement will be reached between the Contractor and the Contracting Officer's representative as to which phases will require an analysis. In addition, a schedule for the preparation, submittal, review, and acceptance of AHAs shall be established to preclude project delays.
- d. Deficiencies in the submitted APP will be brought to the attention of the Contractor at the preconstruction conference, and the Contractor shall revise the plan to correct deficiencies and re-submit it for acceptance. Work shall not begin until there is an accepted APP.

#### 1.6.3.2 Weekly Safety Meetings

Conduct weekly safety meetings at the project site for all employees. The Contracting Officer will be informed of the meeting in advance and be allowed attendance. Minutes showing contract title, signatures of

attendees and a list of topics discussed shall be attached to the Contractors' daily quality control report.

#### 1.6.3.3 Work Phase Meetings

The appropriate AHA shall be reviewed and attendance documented by the Contractor at the preparatory, initial, and follow-up phases of quality control inspection. The analysis should be used during daily inspections to ensure the implementation and effectiveness of safety and health controls.

### 1.7 TRAINING

#### 1.7.1 New Employee Indoctrination

New employees (prime and sub-contractor) will be informed of specific site hazards before they begin work. Documentation of this orientation shall be kept on file at the project site.

#### 1.7.2 Periodic Training

Provide Safety and Health Training in accordance with USACE EM 385-1-1 and the accepted APP. Ensure all required training has been accomplished for all onsite employees.

#### 1.7.3 Training on Activity Hazard Analysis (AHA)

Prior to beginning a new phase, training will be provided to all affected employees to include a review of the AHA to be implemented.

### 1.8 ACCIDENT PREVENTION PLAN (APP)

The Contractor shall use a qualified person to prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of USACE EM 385-1-1 and as supplemented herein. Cover all paragraph and subparagraph elements in USACE EM 385-1-1, Appendix A, "Minimum Basic Outline for Preparation of Accident Prevention Plan". Where a paragraph or subparagraph element is not applicable to the work to be performed indicate "Not Applicable" next to the heading. Specific requirements for some of the APP elements are described below at paragraph 1.8.1. The APP shall be job-specific and shall address any unusual or unique aspects of the project or activity for which it is written. The APP shall interface with the Contractor's overall safety and health program. Any portions of the Contractor's overall safety and health program referenced in the APP shall be included in the applicable APP element and made site-specific. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP shall be signed by the person and firm (senior person) preparing the APP, the Contractor, the on-site superintendent, the designated site safety and health officer and any designated CSP and/or CIH.

Submit the APP to the Contracting Officer 15 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP. The Contracting Officer reviews and comments on

the Contractor's submitted APP and accepts it when it meets the requirements of the contract provisions.

Once accepted by the Contracting Officer, the APP and attachments will be enforced as part of the contract. Disregarding the provisions of this contract or the accepted APP will be cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified.

Once work begins, changes to the accepted APP shall be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSO and quality control manager. Should any unforeseen hazard become evident during the performance of work, the project superintendent shall inform the Contracting Officer, both verbally and in writing, for resolution as soon as possible. In the interim, all necessary action shall be taken by the Contractor to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public, and the environment.

Copies of the accepted plan will be maintained at the [Contracting Officer's][resident engineer's] office and at the job site. The APP shall be continuously reviewed and amended, as necessary, throughout the life of the contract. Unusual or high-hazard activities not identified in the original APP shall be incorporated in the plan as they are discovered.

#### 1.8.1 EM 385-1-1 Contents

In addition to the requirements outlines in Appendix A of USACE EM 385-1-1, the following is required:

a. Names and qualifications (resumes including education, training, experience and certifications) of all site safety and health personnel designated to perform work on this project to include the designated site safety and health officer and other competent and qualified personnel to be used such as CSPs, CIHs, STSSs, CHSTs. The duties of each position shall be specified.

b. Qualifications of competent and of qualified persons. As a minimum, competent persons shall be designated and qualifications submitted for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; health hazard recognition, evaluation and control of chemical, physical and biological agents; personal protective equipment and clothing to include selection, use and maintenance.

c. Health Hazard Control Program. The Contractor shall designate a competent and qualified person to establish and oversee a Health Hazard Control Program in accordance with USACE EM 385-1-1, Section 6. The program shall ensure that employees, on-site Government representatives, and others, are not adversely exposed to chemical, physical and biological agents and that necessary controls and protective actions are instituted to ensure health.

e. Crane Critical Lift Plan. Prepare and sign weight handling critical lift plans for lifts over 75 percent of crane hoist's maximum load limit; lifts involving more than one crane or hoist; lifts of personnel; and technically difficult lifts involving non-routine rigging or operation, sensitive equipment, or unusual safety risks in accordance with USACE EM 385-1-1, paragraph 16.c.18. and submit 15

calendar days prior to on-site work.

f. Alcohol and Drug Abuse Plan

(1) Describe plan for random checks and testing with pre-employment screening in accordance with the DFAR Clause subpart 252.223-7004, "Drug Free Work Force."

(2) Description of the on-site prevention program

g. Fall Protection and Prevention (FP&P) Plan. The plan shall be site specific and address all fall hazards in the work place and during different phases of construction. It shall address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 1.8 m (6 feet). A qualified person shall prepare and sign the plan. The plan shall include fall protection and prevention systems, equipment and methods employed for every phase of work, responsibilities, rescue and escape equipment and operations, training requirements, and monitoring methods. Fall Protection and Prevention Plan shall be revised every six months for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. The accepted Fall Protection and Prevention Plan shall be kept and maintained at the job site for the duration of the project.

h. Site Demolition Plan. The safety and health aspects prepared in accordance with Section 02220A, Demolition 02220, "DEMOLITION".

i. Training Records and Requirements. List of mandatory training and certifications which are applicable to this project (e.g. explosive actuated tools, confined space entry, fall protection, crane operation, vehicle operator, forklift operators, personal protective equipment); list of requirements for periodic retraining/certification; outline requirements for supervisory and employee safety meetings.

1.9 ACTIVITY HAZARD ANALYSIS (AHA)

The Activity Hazard Analysis (AHA) format shall be in accordance with USACE EM 385-1-1. Submit the AHA for review at least 15 calendar days prior to the start of each phase. Format subsequent AHA as amendments to the APP. An AHA will be developed by the Contractor for every operation involving a type of work presenting hazards not experienced in previous project operations or where a new work crew or subcontractor is to perform work. The analysis must identify and evaluate hazards and outline the proposed methods and techniques for the safe completion of each phase of work. At a minimum, define activity being performed, sequence of work, specific safety and health hazards anticipated, control measures (to include personal protective equipment) to eliminate or reduce each hazard to acceptable levels, equipment to be used, inspection requirements, training requirements for all involved, and the competent person in charge of that phase of work. For work with fall hazards, including fall hazards associated with scaffold erection and removal, identify the appropriate fall arrest systems. For work with materials handling equipment, address safeguarding measures related to materials handling equipment. For work requiring excavations, include requirements for safeguarding excavations. An activity requiring an AHA shall not proceed until the AHA has been accepted by the Contracting Officer's representative and a meeting has been conducted by the Contractor to discuss its contents with everyone engaged in the activity, including on-site Government representatives. The



Contractor shall document meeting attendance at the preparatory, initial, and follow-up phases of quality control inspection. The AHA shall be continuously reviewed and, when appropriate, modified to address changing site conditions or operations. The analysis should be used during daily inspections to ensure the implementation and effectiveness of the activity's safety and health controls.

The AHA list will be reviewed periodically (at least monthly) at the Contractor supervisory safety meeting and updated as necessary when procedures, scheduling, or hazards change.

Activity hazard analyses shall be updated as necessary to provide an effective response to changing work conditions and activities. The on-site superintendent, site safety and health officer and competent persons used to develop the AHAs, including updates, shall sign and date the AHAs before they are implemented.

#### 1.10 DISPLAY OF SAFETY INFORMATION

Within 15 calendar days after commencement of work, erect a safety bulletin board at the job site. The following information shall be displayed on the safety bulletin board in clear view of the on-site construction personnel, maintained current, and protected against the elements and unauthorized removal, no separate payment for the furnishing/erecting of the bulletin board as specified and cost there of shall be considered a subsidiary obligation of the contractor:

- a. Map denoting the route to the nearest emergency care facility.
- b. Emergency phone numbers.
- c. Copy of the most up-to-date APP.
- d. AHA(s).
- e. OSHA 300A Form.
- f. Confined space entry permit (If Required).
- g. A sign indicating the number of hours worked since last lost workday accident.
- h. OSHA Safety and Health Protection-On-The-Job Poster.
- i. Safety and Health Warning Posters.

#### 1.11 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturer's manuals.

#### 1.12 EMERGENCY MEDICAL TREATMENT

Contractors will arrange for their own emergency medical treatment. Government has no responsibility to provide emergency medical treatment.

### 1.13 REPORTS

#### 1.13.1 Accident Reports

a. For recordable injuries and illnesses, and property damage accidents resulting in at least \$2,000 in damages, the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the [Navy Contractor Significant Incident Report (CSIR) form] [USACE Accident Report Form 3394] and provide the report to the Contracting Officer within 1 calendar day(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

b. For a weight handling equipment accident the Prime Contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete the WHE Accident Report form and provide the report to the Contracting Officer within 30 calendar days of the accident. The Contracting Officer will provide a blank copy of the accident report form.

#### 1.13.2 Accident Notification

Notify the Contracting Officer as soon as practical, but not later than four hours, after any accident meeting the definition of Recordable Injuries or Illnesses or High Visibility Accidents, property damage equal to or greater than \$2,000, or any weight handling equipment accident involving a overturned crane, collapsed boom, or any other major damage to the crane or adjacent property. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (to include type of construction equipment used, PPE used, etc.). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on site and Government investigation is conducted.

#### 1.13.3 Monthly Exposure Reports

Monthly exposure reporting to the Contracting Officer is required to be attached to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both prime and subcontractor. The Contracting Officer will provide copies of any special forms.

#### 1.13.4 Regulatory Citations and Violations

Contact the Contracting Officer immediately of any OSHA or other regulatory agency inspection or visit, and provide the Contracting Officer with a copy of each citation, report, and contractor response. Correct violations and citations promptly and provide written corrective actions to the Contracting Officer.

#### 1.13.5 Crane Reports

Submit crane inspection reports required in accordance with USACE EM 385-1-1, Appendix H and as specified herein with Daily Reports of Inspections.

## 1.13.6 Certificate of Compliance

The Contractor shall provide a Certificate of Compliance for each crane entering an activity under this contract (see Contracting Officer for a blank certificate). Certificate shall state that the crane and rigging gear meet applicable OSHA regulations (with the Contractor citing which OSHA regulations are applicable, e.g., cranes used in construction, demolition, or maintenance shall comply with 29 CFR 1926 and USACE EM 385-1-1 section 16 and Appendix H. Certify on the Certificate of Compliance that the crane operator(s) is qualified and trained in the operation of the crane to be used. For cranes at DOD activities in foreign countries, the Contractor shall certify that the crane and rigging gear conform to the appropriate host country safety standards. The Contractor shall also certify that all of its crane operators working on the DOD activity have been trained in the proper use of all safety devices (e.g., anti-two block devices). These certifications shall be posted on the crane.

## 1.14 HOT WORK

Prior to performing "Hot Work" (welding, etc.) or operating other flame-producing devices, a written permit shall be requested from the Fire Division. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. The Contractor will provide at least two (2) twenty (20) pound 4A:20 BC rated extinguishers for normal "Hot Work". All extinguishers shall be current inspection tagged, approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity.

- a. Oil painting materials (paint, brushes, empty paint cans, etc.), and all flammable liquids shall be removed from the facility at quitting time. All painting materials and flammable liquids shall be stored outside in a suitable metal locker or box and will require re-submittal with non-hazardous materials.
- b. Accumulation of trays, paper, shavings, sawdust, boxes and other packing materials shall be removed from the facility at the close of each workday and such material disposed of in the proper containers located away from the facility.
- c. The storage of combustible supplies shall be a safe distance from structures.
- d. Area outside the facility undergoing work shall be cleaned of trash, paper, or other discarded combustibles at the close of each workday.
- e. All portable electric devices (saws, sanders, compressors, extension chord, lights, etc.) shall be disconnected at the close of each workday. When possible, the main electric switch in the facility shall be deactivated.
- f. When starting work in the facility, Contractors shall require their personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Division phone number. ANY FIRE, NO MATTER HOW SMALL, SHALL BE REPORTED TO THE RESPONSIBLE FIRE DIVISION IMMEDIATELY.

## PART 2 PRODUCTS (NOT APPLICABLE)

## PART 3 EXECUTION

## 3.1 CONSTRUCTION AND/OR OTHER WORK

The Contractor shall comply with USACE EM 385-1-1, NFPA 241, the APP, the AHA, and other related submittals and activity fire and safety regulations.

## 3.1.1 Hazardous Material Use

Each hazardous material must receive approval prior to being brought onto the job site or prior to any other use in connection with this contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material. Any work or storage involving hazardous chemicals or materials must be done in a manner that will not expose Government or Contractor employees to any unsafe or unhealthful conditions. Adequate protective measures must be taken to prevent Government or Contractor employees from being exposed to any hazardous condition that could result from the work or storage. The Prime Contractor shall keep a complete inventory of hazardous materials brought onto the work-site. Approval by the Contracting Officer of protective measures and storage area is required prior to the start of the work.

## 3.1.2 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials.

## 3.1.3 Unforeseen Hazardous Material

The design should have identified materials such as PCB, lead paint, and friable and non-friable asbestos. If [additional] material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Contracting Officer immediately. Within 14 calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification pursuant to "FAR 52.243-4, Changes" and "FAR 52.236-2, Differing Site Conditions."

## 3.2 PRE-OUTAGE COORDINATION MEETING

Contractors are required to apply for utility outages at least 15 days in advance. As a minimum, the request should include the location of the outage, utilities being affected, duration of outage and any necessary sketches. Special requirements for electrical outage requests are contained elsewhere in this specification section. Once approved, and prior to beginning work on the utility system requiring shut down, the Contractor shall attend a pre-outage coordination meeting with the

Contracting Officer and to review the scope of work and the lock-out/tag-out procedures for worker protection. No work will be performed on energized electrical circuits unless proof is provided that no other means exist.

### 3.3 FALL HAZARD PROTECTION AND PREVENTION

The Contractor shall establish a fall protection and prevention program, for the protection of all employees exposed to fall hazards. The program shall include company policy, identify responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and escape procedures.

#### 3.3.1 Training

The Contractor shall institute a fall protection training program. As part of the Fall Hazard Protection and Prevention Program, the Contractor shall provide training for each employee who might be exposed to fall hazards. Training requirements shall be in accordance with USACE EM 385-1-1, section 21.A.16.

#### 3.3.2 Fall Protection Equipment

The Contractor shall enforce use of the fall protection equipment designated for each specific work activity in the Fall Protection and Prevention Plan and/or AHA at all times when an employee is on a surface 1.8 m (6 feet) or more above lower levels. Fall protection systems such as guardrails, personnel fall arrest system, safety nets, etc., are required when working within 1.8m (6 feet) of any leading edge. In addition to the required fall protection systems, safety skiff, personal floatation devices, life rings etc., are required when working above or next to water in accordance with USACE EM 385-1-1, paragraphs 05.I. and 05.J. Personal fall arrest systems are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall arrest systems may be required when operating other equipment such as scissor lifts if the work platform is capable of being positioned outside the wheelbase. Fall protection must comply with 29 CFR 1926.500, Subpart M and USACE EM 385-1-1.

##### 3.3.2.1 Personal Fall Arrest Equipment

Personal fall arrest equipment, systems, subsystems, and components shall meet ANSI Z359.1. Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest device. Body belts may only be used as a positioning device system (for uses such as steel reinforcing assembly and in addition to an approved fall arrest system). Harnesses shall have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Only locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber. The maximum free fall distance when using fall arrest equipment shall not exceed 1.8 m (6 feet). The total fall distance shall always be taken into consideration when attaching a person to a fall arrest system.

#### 3.3.3 Safety Nets

If safety nets are used as the selected fall protection system on the

project, they shall be provided at unguarded workplaces, over water, machinery, dangerous operations and leading edge work. Safety nets shall be tested immediately after installation with a drop test of 181.4 kg (400 pounds) and every six months thereafter.

#### 3.3.4 Existing Anchorage

Existing anchorages, to be used for attachment of personal fall arrest equipment, shall be certified (or re-certified) by a qualified person in accordance with ANSI Z359.1.

#### 3.3.5 Horizontal Lifelines

Horizontal lifelines shall be designed, installed, certified and used under the supervision of a qualified person as part of a complete fall arrest system (29 CFR 1926.500).

### 3.4 SCAFFOLDING

Employees shall be provided with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Access to scaffold platforms greater than 6 m (20 feet) in height shall be accessed by use of a scaffold stair system. Vertical ladders commonly provided by scaffold system manufacturers shall not be used for accessing scaffold platforms greater than 6 m (20 feet) in height. The use of an adequate gate is required. Contractor shall ensure that employees are qualified to perform scaffold erection and dismantling. Do not use scaffold without the capability of supporting at least four times the maximum intended load or without appropriate fall protection as delineated in the accepted fall protection and prevention plan. Stationary scaffolds must be attached to structural building components to safeguard against tipping forward or backward. Special care shall be given to ensure scaffold systems are not overloaded. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material is prohibited. The first tie-in shall be at the height equal to 4 times the width of the smallest dimension of the scaffold base. Work platforms shall be placed on mud sills. Scaffold or work platform erectors shall have fall protection during the erection and dismantling of scaffolding or work platforms that are more than six feet. Delineate fall protection requirements when working above six feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

### 3.5 EQUIPMENT

#### 3.5.1 Material Handling Equipment

- a. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.
- b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions.
- c. Operators of forklifts or power industrial trucks shall be licensed in accordance with OSHA.

### 3.5.2 Weight Handling Equipment

- a. Cranes must be equipped with:
  - (1) Load indicating devices (LIDs) and a boom angle or radius indicator,
  - (2) or load moment indicating devices (LMIs).
  - (3) Anti-two block prevention devices.
  - (4) Boom hoist hydraulic relief valve, disconnect, or shutoff (stops hoist when boom reaches a predetermined high angle).
  - (5) Boom length indicator (for telescoping booms).
  - (6) Device to prevent uncontrolled lowering of a telescoping hydraulic boom.
  - (7) Device to prevent uncontrolled retraction of a telescoping hydraulic boom.
- b. The Contractor shall notify the Contracting Officer 15 days in advance of any cranes entering the activity so that necessary quality assurance spot checks can be coordinated. Contractor's operator shall remain with the crane during the spot check.
- c. The Contractor shall comply with the crane manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Erection shall be performed under the supervision of a designated person (as defined in ASME B30.5). All testing shall be performed in accordance with the manufacturer's recommended procedures.
- d. The Contractor shall comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes and ASME B30.8 for floating cranes and floating derricks.
- e. The presence of Government personnel does not relieve the Contractor of an obligation to comply with all applicable safety regulations. The Government will investigate all complaints of unsafe or unhealthful working conditions received in writing from contractor employees, federal civilian employees, or military personnel.
- f. Each load shall be rigged/attached independently to the hook/master-link in such a fashion that the load cannot slide or otherwise become detached. Christmas-tree lifting (multiple rigged materials) is not allowed.
- g. Under no circumstance shall a Contractor make a lift at or above 90% of the cranes rated capacity in any configuration.
- h. When operating in the vicinity of overhead transmission lines, operators and riggers shall be alert to this special hazard and shall follow the requirements of USACE EM 385-1-1 section 11 and ASME B30.5 or ASME B30.22 as applicable.
- i. Crane suspended personnel work platforms (baskets) shall not be used unless the Contractor proves that using any other access to the

work location would provide a greater hazard to the workers or is impossible. Personnel shall not be lifted with a line hoist or friction crane.

j. A fire extinguisher having a minimum rating of 10BC and a minimum nominal capacity of 5lb of extinguishing agent shall be available at all operator stations or crane cabs. Portable fire extinguishers shall be inspected, maintained, and recharged as specified in NFPA 10, Standard for Portable Fire Extinguishers.

k. All employees shall be kept clear of loads about to be lifted and of suspended loads.

l. A weight handling equipment operator shall not leave his position at the controls while a load is suspended.

m. Only Contractor crane operators who have met the requirements of 29 CFR 1910.94, 29 CFR 1910.120, 29 CFR 1926.65, 29 CFR 1926.500, USACE EM 385-1-1, ASME B30.5, and ASME B30.22 and other local and state requirements shall be authorized to operate the crane.

n. The Contractor shall use cribbing when performing lifts on outriggers.

o. The crane hook/block must be positioned directly over the load. Side loading of the crane is prohibited.

p. A physical barricade must be positioned to prevent personnel from entering the counterweight swing (tail swing) area of the crane.

q. A substantial and durable rating chart containing legible letters and figures shall be provided with each crane and securely mounted onto the crane cab in a location allowing easy reading by the operator while seated in the control station.

r. Certification records which include the date of inspection, signature of the person performing the inspection, and the serial number or other identifier of the crane that was inspected shall always be available for review by Contracting Officer personnel.

s. Written reports listing the load test procedures used along with any repairs or alterations performed on the crane shall be available for review by Contracting Officer personnel.

t. The Contractor shall certify that all crane operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

### 3.5.3 Equipment and Mechanized Equipment

a. Equipment shall be operated by designated qualified operators. Proof of qualifications shall be kept on the project site for review.

b. Manufacture specifications or owner's manual for the equipment shall be on site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Such additional safety precautions or requirements shall be incorporated into the AHAs.



c. Equipment and mechanized equipment shall be inspected in accordance with manufacturer's recommendations for safe operation by a competent person prior to being placed into use.

d. Daily checks or tests shall be conducted and documented on equipment and mechanized equipment by designated competent persons.

### 3.6 EXCAVATIONS

The competent person for excavations performed as a result of contract work shall be on-site when excavation work is being performed, and shall inspect, and document the excavations daily prior to entry by workers. The competent person must evaluate all hazards, including atmospheric, that may be associated with the work, and shall have the resources necessary to correct hazards promptly.

#### 3.6.1 Utility Locations

Prior to digging, the appropriate digging permit must be obtained. All underground utilities in the work area must be positively identified by a private utility locating service in addition to any station locating service and coordinated with the station utility department. Any markings made during the utility investigation must be maintained throughout the contract.

#### 3.6.2 Utility Location Verification

The Contractor must physically verify underground utility locations by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within three feet of the underground system. Digging within .061 m (2 feet) of a known utility must not be performed by means of mechanical equipment; hand digging shall be used. If construction is parallel to an existing utility the utility shall be exposed by hand digging every 30.5 m (100 feet) if parallel within 1.5 m (5 feet) of the excavation.

#### 3.6.3 Utilities with Concrete Slabs

Utilities located within concrete slabs or pier decks, bridges, and the like are extremely difficult to identify. The location must be coordinated with station utility departments in addition to a private locating service.

Outages on system utilities shall be used in circumstances where concrete chipping, saw cutting, or core drilling is required and utilities are unable to be completely identified.

#### 3.6.4 Shoring Systems

Trench and shoring systems must be identified in the accepted safety plan and AHA. Manufacture tabulated data and specifications or registered engineer tabulated data for shoring or benching systems shall be readily available on site for review. Job-made shoring or shielding shall have the registered professional engineer stamp, specifications, and tabulated data.

Extreme care must be used when excavating near direct burial electric underground cables.

#### 3.6.5 Trenching Machinery

Trenching machines with digging chain drives shall be operated only when the spotters/laborers are in plain view of the operator. Operator and

spotters/laborers shall be provided training on the hazards of the digging chain drives with emphasis on the distance that needs to be maintained when the digging chain is operating. Documentation of the training shall be kept on file at the project site.

### 3.7 ELECTRICAL

#### 3.7.1 Conduct of Electrical Work

Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the Contracting Officer and Station Utilities for identification. The Contracting Officer will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. Insulating blankets, hearing protection, and switching suits may be required, depending on the specific job and as delineated in the Contractor's AHA.

#### 3.7.2 Portable Extension Cords

Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered and protected from damage. All damaged extension cords shall be immediately removed from service. Portable extension cords shall meet the requirements of NFPA 70.

### 3.8 WORK IN CONFINED SPACES

The Contractor shall comply with the requirements in Section 06.I of USACE EM 385-1-1 and OSHA 29 CFR 1910.146. Any potential for a hazard in the confined space requires a permit system to be used.

a. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.05 of USACE EM 385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.

b. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its' action level.

- c. Ensure the use of rescue and retrieval devices in confined spaces greater than 1.5 m (5 feet) in depth. Conform to Sections 06.I.09, 06.I.10 and 06.I.11 of USACE EM 385-1-1.
- d. Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.
- e. Include training information for employees who will be involved as entrants and attendants for the work. Conform to Section 06.I.06 of USACE EM 385-1-1.
- f. Daily Entry Permit. Post the permit in a conspicuous place close to the confined space entrance.

### 3.9 CRYSTALLINE SILICA

Grinding, abrasive blasting, and foundry operations of construction materials containing crystalline silica, shall comply with OSHA regulations, such as 29 CFR 1910.94, and USACE EM 385-1-1, Appendix C. The Contractor shall develop and implement effective exposure control and elimination procedures to include dust control systems, engineering controls, and establishment of work area boundaries, as well as medical surveillance, training, air monitoring, and personal protective equipment.

### 3.10 HOUSEKEEPING

#### 3.10.1 Clean-Up

All debris in work areas shall be cleaned up daily or more frequently if necessary. Construction debris may be temporarily located in an approved location, however garbage accumulation must be removed each day.

#### 3.10.2 Dust control

In addition to the dust control measures required elsewhere in the contract documents, dry cutting of brick or masonry shall be prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to this prohibition on a case-by-case basis. Wet cutting must address control of water run off.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION 01580

CONSTRUCTION PROJECTS AND SAFETY PERFORMANCE SIGNS

PART 1 GENERAL

- 1.1 SUBMITTALS
- 1.2 QUALITY CONTROL

PART 2 PRODUCTS

- 2.1 SIGN CONSTRUCTION
  - 2.1.1 Government-Furnished Materials
  - 2.1.2 Contractor-Furnished Materials
    - 2.1.2.1 Sign Lettering

PART 3 EXECUTION

- 3.1 INSTALLATION
- 3.2 MAINTENANCE
- 3.3 REMOVAL

-- End of Section Table of Contents --

## SECTION 01580

## CONSTRUCTION PROJECTS AND SAFETY PERFORMANCE SIGNS

## PART 1 GENERAL

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Sign Layouts; G-AOF.

Submit the proposed layouts before applying lettering.

## 1.2 QUALITY CONTROL

The Contractor shall establish and maintain a quality control system for all operations performed under this Section to assure compliance with contract requirements and maintain records of its quality control for all operations performed, including, but not limited to the following:

- a. Quality - materials and workmanship.
- b. Overall appearance of signs and site.
- c. Observance of safety regulations.

## PART 2 PRODUCTS

## 2.1 SIGN CONSTRUCTION

The materials to be used and the manner in which they are to be assembled and installed are shown on the sketches enclosed in SECTION 01999.

## 2.1.1 Government-Furnished Materials

The Government will furnish and deliver to the Contractor at the project site one (1) Construction Project sign panel, four (4) feet by six (6) feet by 3/4 inch thick and one (1) Safety Performance sign panel, four (4) feet by four (4) feet by 3/4 inch thick. Each sign panel will have affixed graphics and be lettered except for the project title and the name of the Contractor. Each sign panel will embody six (6) 1/4 inch diameter T-nuts appropriately placed. The Government will retain possession of the removable numbers for the Safety Performance sign and affix them at the appropriate times.

## 2.1.2 Contractor-Furnished Materials

All materials necessary for construction of the signs as described on the sketches except those furnished by the Government, shall be furnished by

the Contractor. All wood members shall be of well seasoned, kiln dried, clear redwood, bald cypress, red cedar, Douglas fir, spruce, tulip poplar or white pine. The lumber materials shall be free of splits, wane and loose knots or pitch pockets. Wood materials for posts, braces and stakes shall be preservative treated. All members of the sign shall be fastened with screws or bolts of type, size, number and spacing to provide rigid construction and a neat appearance. The Contractor shall furnish twelve (12) each 1/4 inch diameter by four (4) inches long Allen head bolts, threaded to match the T-nuts.

#### 2.1.2.1 Sign Lettering

In the location provided on each sign panel, the Contractor shall apply the applicable project title, Contractor name [and architect/engineer name]. Specific information for sign layouts will be provided by the Contracting Officer's Representative (COR) at the conference specified hereinbefore in clause titled "PRE-CONSTRUCTION CONFERENCE." Lettering shall be black. The materials used for lettering shall be of a type which will adhere to the high density overlay plywood panels under all weather conditions and shall be applied in accordance with the lettering manufacturer's recommendations. Letter size, typeface and maximum line lengths are as follows:

	<u>Construction Project Sign</u>	<u>Safety Performance Sign</u>
Project Title		
Typeface	Helvetica Bold	Helvetica Regular
Letter size (inches)	3	1.5
Maximum line length (inches)	42	42
Contractor's Name		
Typeface	Helvetica Regular	Helvetica Regular
Letter size (inches)	1.25	1.5
Maximum line length (inches)	21	42

### PART 3 EXECUTION

#### 3.1 INSTALLATION

The Contractor shall affix the panels to the posts with the Allen head bolts prior to erection of the signs, including drilling counter-sunk 1/4 inch diameter holes in the posts to match the T-nut locations. The Contractor shall take all precautions necessary to protect the faces of the signs from damage during assembly and construction. The signs shall be installed upon commencement of the work under this contract. The location in which each sign is to be installed shall be as directed by the Contracting Officer. The site on which the signs are to be installed shall be cleared and leveled to facilitate the installation of, and provide easy visual contact with, the signs. Installation and positioning of the posts, braces and stakes shall be as indicated on the referenced sketches. Excavation and backfilling of the holes for posts and installation of the posts, braces and stakes shall be such that signs are installed plumb and level.

#### 3.2 MAINTENANCE

The Contractor shall maintain the signs in good condition and the sign site

in a neat condition throughout the construction period.

### 3.3 REMOVAL

Upon completion of all contract work, the signs shall be removed by the Contractor and turned over to the Contracting Officer's Representative at the site.

-- End of Section --

SECTION TABLE OF CONTENTS

DIVISION 01 - GENERAL REQUIREMENTS

SECTION [01999]

LISTING OF ENCLOSED DOCUMENTS, EXHIBITS AND OTHER ATTACHEMENT

PART 1    GENERAL

    1.1    ENCLOSURES

PART 2    PRODUCTS    (NOT APPLICABLE)

PART 3    EXECUTION    (NOT APPLICABLE)

-- End of Section Table of Contents --



## SECTION [01999]

## LISTING OF ENCLOSED DOCUMENTS, EXHIBITS AND OTHER ATTACHEMENT

## PART 1 GENERAL

## 1.1 ENCLOSURES

This Section contains documents referenced in other Sections of the specifications. They are consolidated in this Section for the convenience of the Contractor and the Government. The Contractor may reproduce the enclosed forms for its use or obtain a supply of the forms from the Contracting Officer.

**TITLE**

CONSTRUCTION QUALITY MANAGEMENT REPORT - NCE FORM 63,  
6 MAY 77. (2 Sides)

PREPARATORY INSPECTION CHECKLIST (3 SIDES)

INITIAL INSPECTION CHECKLIST (2 SIDES)

ACCIDENT PREVENTION PROGRAM ACTIVITY HAZARD ANALYSIS-  
NCE FORM 129, 6 JUNE 1986.

RESIDENT MANAGEMENT SYSTEM FORMS (SAMPLES)

A. CURRENT ACTIVITY SUMMARY (SMPL)

B. INITIAL INSPECTION WORKSHEET

C. PREPARATORY INSPECTION WORKSHEET

D. CONTRACTOR QUALITY CONTROL REPORT (QCR)

E. TRANSMITTAL SHEET (4025-R)

SUBMITTAL REGISTER - ENG FORM 4288, MAY 91

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA,  
MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATIONS  
OF COMPLIANCE ENG FORM 4025, MAY 91 (2 SIDES)

CONSTRUCTION PROJECT AND SAFETY PERFORMANCE SIGNS

CHAPTER 30 PERMIT

GENERAL DECISION NO. WI030019

## PART 2 PRODUCTS (NOT APPLICABLE)

## PART 3 EXECUTION (NOT APPLICABLE)

-- End of Section --

CONSTRUCTION QUALITY CONTROL MANAGEMENT

DATE \_\_\_\_\_ REPORT \_\_\_\_\_  
CONTRACTOR \_\_\_\_\_ CONTRACT NO. \_\_\_\_\_  
PROJECT NAME \_\_\_\_\_ LOCATION \_\_\_\_\_  
WEATHER TYPE \_\_\_\_\_ TEMP. MAX \_\_\_\_\_ MIN \_\_\_\_\_ RAINFALL \_\_\_\_\_ GAGE READING \_\_\_\_\_  
EMPLOYEES: SUPV. \_\_\_\_\_ SKILLED \_\_\_\_\_ LABORERS \_\_\_\_\_ LENGTH OF SHIFT \_\_\_\_\_ HR \_\_\_\_\_

WORK RESPONSIBILITY: NAME (PRIME OR SUBCONTRACTOR) AND AREA OF RESPONSIBILITY .

A. \_\_\_\_\_  
B. \_\_\_\_\_  
C. \_\_\_\_\_  
D. \_\_\_\_\_  
E. \_\_\_\_\_

WORK PERFORMED TODAY: (LOCATION, DESCRIPTION, QUANTITY AND RESPONSIBILITY BY LETTER REFERENCE  
( Relate to Items on the Progress Chart or CPM)

INSPECTION: (DESCRIPTION OF INSPECTION AND LOCATION. INCLUDE OFF-SITE, MATERIALS AND EQUIPMENT INSPECTION.)

A. PREPARATORY PHASE:

B. INITIAL PHASE:

C. CONTINUOUS PHASE:

RESULTS OF INSPECTION: (INCLUDE FINDINGS, DEFICIENCIES OBSERVED & CORRECTIVE ACTION)

RESULTS OF SURVEILLANCE CONTINUED:

---

TEST PERFORMED: TYPE, LOCATION, RESULTS INCLUDING FAILURES & REMEDIAL ACTION,  
(ATTACH COPY OF TEST REPORT OR NOTATION WHEN IT WILL BE FURNISHED.)

---

WORK ITEMS BEHIND SCHEDULE: REASON, EFFECT ON PROGRESS SCHEDULE AND ACTION TAKEN.

---

JOB SAFETY: (REPORT CONDITIONS, DEFICIENCIES, CORRECTIVE ACTION & RESULTS.)

---

REMARKS: LIST ATTACHMENT AND OTHER MANAGEMENT ACTIONS TAKEN TO ASSURE QUALITY  
CONSTRUCTION

IF INSPECTION & RESULTS ARE NOT LISTED THEN IT IS ASSUMED THAT QUALITY CONTROL IS NOT BEING  
IMPLEMENTED.  
THE ABOVE REPORT IS COMPLETE AND CORRECT AND ALL MATERIALS & SUPPLIES INCORPORATED IN THE  
WORK ARE IN COMPLIANCE WITH THE TERMS OF THE CONTRACT EXCEPT AS NOTED:

---

CONTRACTOR'S APPROVED REPRESENTATIVE SIGNATURE

ACCIDENT PREVENTION PROGRAM  
ACTIVITY HAZARD ANALYSIS

Page    of   

1. Contract No.	2. Project	3. Facility
4. Date	5. Location	6. Estimated Start Date

7. Item	8. Phase of Work	9. Safety Hazard	10. Precautionary Action Taken

11. Contractor (Signature & Date)
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12. Report discussed with contractor/ superintendent on	13. Contracting Officer (Signature & Date)
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US Army Corps  
of Engineers

## Current Activity Summary

08 Jul 2002

Project Name: Repair of North & South Piers, Baloney Harbor, MI  
Contract Number: DACW35-02-C-####

Location Name

Activity Number	Activity Description	QUANTITY	UNIT PRICE	AMOUNT
<b>CLIN 0001</b>	<b>North and South Pier Repairs</b>	<b>1</b>	<b>\$3,437,787.18 / LS</b>	<b>\$3,437,787.18</b>
1001	Bonds			\$49,136.00
1002A	Prepare & Mobilize Equipment			\$94,864.00
1002B	Prepare Site			\$72,500.00
1002C	Office Trailers & Utilities			\$22,500.00
1003A	Demobilize Equipment			\$5,000.00
1003B	Site Restoration			\$2,500.00
1003C	As-Built Drawings			\$2,500.00
1004A	Furnish SSP			\$750,000.00
1004B	Furnish Special Piles			\$50,000.00
1004C	Furnish SSP Pile Shoes			\$30,000.00
1004D	Fabricate Template			\$6,000.00
1004E	Excavate Driving Line			\$100,000.00
1004F	Set & Drive SSP			\$500,000.00
1004G	Backfill Driving Line			\$50,000.00
1004I	South Driving Line Obstruction Removal			\$117,787.18
1005A	Furnish Misc. Steel			\$193,000.00
1005B	Furnish Tie-Rods			\$20,000.00
1005C	Furnish Plate Washers			\$15,000.00
1005D	Furnish Fastners			\$12,000.00
1005E	Place Misc. Steel			\$280,000.00
1006A	Demo Concrete & Remove (Rubblemound)			\$100,000.00
1006B	Excavate Existing Crib (Rubblemound Area)			\$185,000.00
1006C	Disposal of Demo Materials (Rubblemound Area)			\$25,000.00
1007A	Furnish H-Pile Materials			\$22,800.00
1007B	Install H-Piles			\$27,200.00
1008A	Furnish Rebar			\$135,000.00
1008B	Place Concrete (2000 CY @ \$250.00/CY)			\$500,000.00
1009A	Furnish Handrails			\$60,000.00
1009B	Place Handrails			\$7,000.00
1009C	Paint Handrails			\$3,000.00
				<b>\$3,437,787.18</b>
<b>CLIN 0002</b>	<b>Fill Stone:</b>	<b>0</b>	<b>\$0.00 / NA</b>	<b>\$0.00</b>
	No Activities Assigned to this Bid Item.			
<b>CLIN 0002AA</b>	<b>First 18,000 tons</b>	<b>18,000</b>	<b>\$22.50 / TN</b>	<b>\$405,000.00</b>
2001	Furnish & Place Fill Stone - 1st 18,000 Tons			\$405,000.00
				\$405,000.00
<b>CLIN 0002AB</b>	<b>Over 10,000 tons</b>	<b>2,000</b>	<b>\$22.50 / TN</b>	<b>\$45,000.00</b>
2101	Furnish & Place Fill Stone - Over 18,000 Tons			\$45,000.00
				\$45,000.00
<b>CLIN 0003</b>	<b>Underlayer Stone:</b>	<b>0</b>	<b>\$0.00 / NA</b>	<b>\$0.00</b>
	No Activities Assigned to this Bid Item.			
<b>CLIN 0003AA</b>	<b>First 4,500 Tons</b>	<b>4,500</b>	<b>\$31.50 / TN</b>	<b>\$141,750.00</b>
3001	Furnish & Place Underlayer Stone - 1st 4,500 Tons			\$141,750.00
				\$141,750.00
<b>CLIN 0003AB</b>	<b>Over 4,500 tons</b>	<b>450</b>	<b>\$31.50 / TN</b>	<b>\$14,175.00</b>
3101	Furnish & Place Underlayer Stone - Over 4,500 Tons			\$14,175.00
				\$14,175.00
<b>CLIN 0004</b>	<b>Scour Stone:</b>	<b>0</b>	<b>\$0.00 / NA</b>	<b>\$0.00</b>



US Army Corps  
of Engineers

## Current Activity Summary

08 Jul 2002

Project Name: Repair of North & South Piers, Baloney Harbor, MI  
Contract Number: DACW35-02-C-####

Location Name

Activity Number	Activity Description	QUANTITY	UNIT PRICE	AMOUNT
<b>CLIN 0004</b>	<b>Scour Stone: (Continued)</b>	<b>0</b>	<b>\$0.00 / NA</b>	<b>\$0.00</b>
No Activities Assigned to this Bid Item.				
<b>CLIN 0004AA</b>	<b>First 3,500 tons</b>	<b>3,500</b>	<b>\$27.50 / TN</b>	<b>\$96,250.00</b>
4001	Furnish & Place Scour Stone - 1st 3,500 Tons			\$96,250.00
				\$96,250.00
<b>CLIN 0004AB</b>	<b>Over 3,500 tons</b>	<b>600</b>	<b>\$27.50 / TN</b>	<b>\$16,500.00</b>
4101	Furnish & Place Scour Stone - Over 3,500 Tons			\$16,500.00
				\$16,500.00
<b>CLIN 0005</b>	<b>Bedding Stone:</b>	<b>0</b>	<b>\$0.00 / NA</b>	<b>\$0.00</b>
No Activities Assigned to this Bid Item.				
<b>CLIN 0005AA</b>	<b>First 3,000 tons</b>	<b>3,000</b>	<b>\$28.00 / TN</b>	<b>\$84,000.00</b>
5001	Furnish & Place Bedding Stone - 1st 3,000 Tons			\$84,000.00
				\$84,000.00
<b>CLIN 0005AB</b>	<b>Over 3,000 tons</b>	<b>600</b>	<b>\$28.00 / TN</b>	<b>\$16,800.00</b>
5101	Furnish & Place Bedding Stone - Over 3,000 Tons			\$16,800.00
				\$16,800.00
<b>CLIN 0006</b>	<b>Armor Stone:</b>	<b>0</b>	<b>\$0.00 / NA</b>	<b>\$0.00</b>
No Activities Assigned to this Bid Item.				
<b>CLIN 0006AA</b>	<b>First 6,000 tons</b>	<b>6,000</b>	<b>\$34.00 / TN</b>	<b>\$204,000.00</b>
6001	Furnish & Place Armor Stone - 1st 6,000 Tons			\$204,000.00
				\$204,000.00
<b>CLIN 0006AB</b>	<b>Over 6,000 tons</b>	<b>825</b>	<b>\$34.00 / TN</b>	<b>\$28,050.00</b>
6101	Furnish & Place Armor Stone - Over 6,000 Tons			\$28,050.00
				\$28,050.00
Sum of CLINs				\$4,489,312.18
Sum of Activities				\$4,489,312.18
Difference				\$0.00

## INITIAL INSPECTION WORKSHEET

DEFINABLE FEATURE OF WORK : Site Cast Concrete

### A. ACTIVITIES INCLUDED UNDER Site Cast Concrete -

ABC Company, Inc

1008A	Furnish Rebar	\$135,000.00
1008B	Place Concrete (2000 CY @ \$250.00/CY)	\$500,000.00
		<hr/> \$635,000.00

### B. QUALITY CONTROL REQUIREMENTS -

#### SUBMITTALS REQUIRED -

00700	1	SF 1413 for Subcontracts		Not submitted
03250	1	Expansion Joint Materials	A	Approved
03307	1	Batching and Mixing Equipment	F	Receipt
03307	2	Conveying and Placement Equipment	F	Receipt
03307	3	Reinforcing Steel (Mat Steel, Bar Steel)	A	Approved
03307	4	Concrete Mixture Proportions;	A	Approved
03307	5	Cementitious Material	A	Approved
03307	6	Aggregates	A	Approved
03307	7	Manufacturer's Literature	A	Approved
03307	8	Batching & Mixing Equipment - Redi-Mix	F	Receipt
03307	9	Conveying & Placing Equipment - Redi-Mix	F	Receipt
03307	10	Concrete Mix Proportions - Redi-Mix	A	Approved
03307	11	Cementitious Material - Redi-Mix	A	Approved
03307	12	Aggregates - Redi Mix	A	Approved
03307	13	Manufacturer's Data; AEA - Redi-Mix	A	Approved
03307	14	Manufacturer's Data; WRA - Redi-Mix	A	Approved
05500	2	Welders	F	Receipt
05552	4	Mill Certs - Ladder Grab Rails	A	Approved

#### QC TESTS -

CT # 00001	Obtain 1 Cylinder for strength testing at 7 days and 2 Cylinders for 28 days. Minimum of one set per day or 1 set per every 150 CY placed. (ASTM C-94) Required strength at 7 Days = 2,800 p.s.i.; 28 Days = 4,000 p.s.i.	Not Performed
CT # 00002	Check Batch slips for water/cement ratio not to exceed 0.40 by weight	Not Performed
CT # 00003	Check Slump at both mixer and discharge ends: Pumped = 3" - 7" at discharge Maximum of 5" at Mixer if no admixture used Maximum of 7" at mixer if admixture is used 2 checks per shift is minimum required	Not Performed
CT # 00004	2 Air Content tests required per shift. Check approved mix design for maximum and minimum values acceptable.	Not Performed

### C. QA/QC PUNCH LIST ITEMS -

## INITIAL INSPECTION WORKSHEET

DEFINABLE FEATURE OF WORK : Site Cast Concrete

### C. QA/QC PUNCH LIST ITEMS - Cont.

INCLUDE ADDITIONAL COMMENTS ON DAILY REPORT

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### D. LABOR RATES -

LABOR CLASSIFICATIONS	BASIC RATE	FRINGE BENEFITS	PLUS %	TOTAL WAGE/HR
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
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### E. INSPECTION CHECKS -

1. Check rebar for proper bar sizes, per approved shop drawings.
2. Check for 3" clearance of rebar from form sides and top surface.
3. Check for proper use of concrete vibrators
4. Check for correct finish elevations.
5. Concrete finish shall meet approval of on-site Government Representative. Make sure all finishers are aware of approved finishing method and degree of brooming.
6. Ensure embedded items are not displaced during placement and finishing of the concrete.
7. 

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8. 

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9. 

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10. 

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IN COMPLIANCE  
Yes/ No/ NA

<hr/>	<hr/>	<hr/>
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### F. JOB SITE SAFETY -

1. All employees working over water are required to wear workvests (PFDs)
2. All employees are to wear hard hats.
3. Concrete Pump must be shut down prior to cleaning.
4. Review Activity Hazard Analysis for Concrete Work prior to performing this work.
5. 

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6. 

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7. 

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8. 

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IN COMPLIANCE  
Yes/ No/ NA

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### G. QA Evaluation Notes -

1. 

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2. 

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3. 

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4. 

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DISCUSSED  
Yes/ No/ NA

<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>



**PREPARATORY INSPECTION WORKSHEET**

DEFINABLE FEATURE OF WORK : Site Cast Concrete

**A. ACTIVITIES INCLUDED UNDER Site Cast Concrete -**

ABC Company, Inc.

1008A	Furnish Rebar	\$135,000.00
1008B	Place Concrete (2000 CY @ \$250.00/CY)	\$500,000.00
		<hr/> \$635,000.00

**B. QUALITY CONTROL REQUIREMENTS -****SUBMITTALS REQUIRED -**

00700	1	SF 1413 for Subcontracts		Not submitted
03250	1	Expansion Joint Materials	A	Approved
03307	1	Batching and Mixing Equipment	F	Receipt
03307	2	Conveying and Placement Equipment	F	Receipt
03307	3	Reinforcing Steel (Mat Steel, Bar Steel)	A	Approved
03307	4	Concrete Mixture Proportions;	A	Approved
03307	5	Cementitious Material	A	Approved
03307	6	Aggregates	A	Approved
03307	7	Manufacturer's Literature	A	Approved
03307	8	Batching & Mixing Equipment - Redi-Mix	F	Receipt
03307	9	Conveying & Placing Equipment - Redi-Mix	F	Receipt
03307	10	Concrete Mix Proportions - Redi-Mix	A	Approved
03307	11	Cementitious Material - Redi-Mix	A	Approved
03307	12	Aggregates - Redi Mix	A	Approved
03307	13	Manufacturer's Data; AEA - Redi-Mix	A	Approved
03307	14	Manufacturer's Data; WRA - Redi-Mix	A	Approved
05500	2	Welders	F	Receipt
05552	4	Mill Certs - Ladder Grab Rails	A	Approved

**C. QA/QC PUNCH LIST ITEMS -**

INCLUDE ADDITIONAL COMMENTS ON DAILY REPORT

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**D. LABOR RATES -**

LABOR CLASSIFICATIONS	BASIC RATE	FRINGE BENEFITS	PLUS %	TOTAL WAGE/HR
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
<hr/>	<hr/>	<hr/>	<hr/>	<hr/>

## PREPARATORY INSPECTION WORKSHEET

DEFINABLE FEATURE OF WORK : Site Cast Concrete

### E. REVIEW CONTRACT DRAWINGS AND SPECIFICATIONS -

DRAWING / SPEC. NO

COMMENTS / CONFLICTS

_____	_____
_____	_____
_____	_____

DISCUSSED

Yes/ No/ NA

- |    |       |       |       |
|----|-------|-------|-------|
| 1. | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ |

### F. REPETITIVE DEFICIENCIES FOUND ON PREVIOUS PROJECTS -

DISCUSSED

Yes/ No/ NA

- |    |       |       |       |
|----|-------|-------|-------|
| 1. | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ |

### G. INSPECTION CHECKS -

IN COMPLIANCE

Yes/ No/ NA

- |    |       |       |       |
|----|-------|-------|-------|
| 1. | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ |

### H. JOB SITE SAFETY -

IN COMPLIANCE

Yes/ No/ NA

- |    |       |       |       |
|----|-------|-------|-------|
| 1. | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ |

### I. QUALITY ASSURANCE EVALUATION NOTES -

DISCUSSED

Yes/ No/ NA

- |    |       |       |       |
|----|-------|-------|-------|
| 1. | _____ | _____ | _____ |
| 2. | _____ | _____ | _____ |
| 3. | _____ | _____ | _____ |
| 4. | _____ | _____ | _____ |

<b>CONTRACTORS QUALITY CONTROL REPORT (QCR)</b> <b>DAILY LOG OF CONSTRUCTION - CIVIL</b>		REPORT NUMBER 92                      Page 1 of 2																					
		DATE 22 Jun 2001 - Friday																					
PROJECT North & South Pier Repair, Baloney Harbor, MI		CONTRACT NUMBER DACW35-02-C-####    NA																					
CONTRACTOR ABC Company, Inc. 555 Imagination Road, Fantasy, MI 49494		WEATHER Weather Caused No Delay Temperature Min 80 °F, Max 63 °F; 0.01 IN Precipitation; 10 MPH Wind																					
<b>QC NARRATIVES</b>  <b>Activities in Progress:</b> Set and drove 24 sheets of SSP  Installing Miscellaneous Steel Waler sections c/s 4+00W to 4+50W  123 Tons of Fill stone placed between existing structure and req'd SSP wall from c/s 6+25 W to 6+75W.  <b>Safety Inspection / Safety Meetings:</b> Weekly Safety Meeting held today - Use of PPE - Hrad hats & Work Vests																							
<b>PREP/INITIAL DATES</b> (Preparatory and initial dates held and advance notice)  <b>A preparatory inspection was held today for the following feature:</b> Miscellaneous Steel & Handrail  <b>An initial inspection was held today for the following feature:</b> Miscellaneous Steel & Handrail																							
<b>ACTIVITY START/FINISH</b>  <b>The following activity was started today:</b> <table border="0"> <tr> <td><u>Activity No</u></td> <td><u>Description</u></td> </tr> <tr> <td>2001</td> <td>Furnish &amp; Place Fill Stone - 1st 18,000 Tons</td> </tr> </table> <b>No activities were finished today</b>				<u>Activity No</u>	<u>Description</u>	2001	Furnish & Place Fill Stone - 1st 18,000 Tons																
<u>Activity No</u>	<u>Description</u>																						
2001	Furnish & Place Fill Stone - 1st 18,000 Tons																						
<b>QC REQUIREMENTS</b>  <b>The following 4 QC requirements were completed today:</b> <table border="0"> <tr> <td><u>Requirement No</u></td> <td><u>Type</u></td> <td><u>Description</u></td> <td><u>Results</u></td> </tr> <tr> <td>CT-00001</td> <td>QC Testing</td> <td>Check Plumbness of piles during driving</td> <td>Completed</td> </tr> <tr> <td>CT-00002</td> <td>QC Testing</td> <td>Check horizontal placement of piling (Check for Pile-Walk)</td> <td>Completed</td> </tr> <tr> <td>CT-00003</td> <td>QC Testing</td> <td>Check vibratory hammer driving rate for SSP - 12"/minute is the minimum rate. If exceeded, switch to Impact hammer.</td> <td>Completed</td> </tr> <tr> <td>CT-00004</td> <td>QC Testing</td> <td>Video Tape Interlocks of piling after driving SSP</td> <td>Completed</td> </tr> </table>				<u>Requirement No</u>	<u>Type</u>	<u>Description</u>	<u>Results</u>	CT-00001	QC Testing	Check Plumbness of piles during driving	Completed	CT-00002	QC Testing	Check horizontal placement of piling (Check for Pile-Walk)	Completed	CT-00003	QC Testing	Check vibratory hammer driving rate for SSP - 12"/minute is the minimum rate. If exceeded, switch to Impact hammer.	Completed	CT-00004	QC Testing	Video Tape Interlocks of piling after driving SSP	Completed
<u>Requirement No</u>	<u>Type</u>	<u>Description</u>	<u>Results</u>																				
CT-00001	QC Testing	Check Plumbness of piles during driving	Completed																				
CT-00002	QC Testing	Check horizontal placement of piling (Check for Pile-Walk)	Completed																				
CT-00003	QC Testing	Check vibratory hammer driving rate for SSP - 12"/minute is the minimum rate. If exceeded, switch to Impact hammer.	Completed																				
CT-00004	QC Testing	Video Tape Interlocks of piling after driving SSP	Completed																				
<b>QA/QC PUNCH LIST</b> (Describe QC Punch List items issued, Report QC and QA Punch List items corrected)  <b>The following QC Punch List item was issued today:</b> <table border="0"> <tr> <td><u>Item No</u></td> <td><u>Location</u></td> <td><u>Description</u></td> </tr> <tr> <td>QC-00001</td> <td>4+25W</td> <td>Cut-off sheets to finish grade from 4+00W to 4+50W</td> </tr> </table> <b>No Punch List items were corrected today</b>				<u>Item No</u>	<u>Location</u>	<u>Description</u>	QC-00001	4+25W	Cut-off sheets to finish grade from 4+00W to 4+50W														
<u>Item No</u>	<u>Location</u>	<u>Description</u>																					
QC-00001	4+25W	Cut-off sheets to finish grade from 4+00W to 4+50W																					
<b>CONTRACTORS ON SITE</b> (Report first and/or last day contractors were on site)  <b>No contractors had their first or last day on site today</b>																							
<b>LABOR HOURS</b>  <b>The following labor hours were Reported today:</b> <table border="0"> <tr> <td><u>Employer</u></td> <td><u>Labor Classification</u></td> <td><u>Number of Employees</u></td> <td><u>Hours Worked</u></td> </tr> <tr> <td></td> <td>IRONWORKER</td> <td>3.0</td> <td>10.0</td> </tr> <tr> <td></td> <td>PILE DRIVING SETTER</td> <td>2.0</td> <td>10.0</td> </tr> </table>				<u>Employer</u>	<u>Labor Classification</u>	<u>Number of Employees</u>	<u>Hours Worked</u>		IRONWORKER	3.0	10.0		PILE DRIVING SETTER	2.0	10.0								
<u>Employer</u>	<u>Labor Classification</u>	<u>Number of Employees</u>	<u>Hours Worked</u>																				
	IRONWORKER	3.0	10.0																				
	PILE DRIVING SETTER	2.0	10.0																				

<b>CONTRACTORS QUALITY CONTROL REPORT (QCR)</b> <b>DAILY LOG OF CONSTRUCTION - CIVIL</b>		REPORT NUMBER 92		Page 2 of 2
		DATE 22 Jun 2001 - Friday		
PROJECT North & South Pier Repair, Baloney Harbor, MI		CONTRACT NUMBER DACW35-02-C-####		
ABC Company, Inc. PILE DRIVER OPERATOR Total hours worked to date: 30.0		Total	1.0 6.0	10.0 30.0
<b>EQUIPMENT HOURS</b> <b>The following equipment hours were Reported today:</b>				
Equipment ID	Description		Standby Hours	Operating Hours
00000002	Vibratory Hammer		0.0	10.0
00000003	Arc Welder		0.0	8.0
00000004	Crane - 100' Boom		0.0	10.0
Total operating hours to date: 28.0		Total	0.0	28.0
<b>ACCIDENT REPORTING</b> (Describe accidents) <b>No accidents reported today</b>				
CONTRACTOR CERTIFICATION <b>On behalf of the contractor, I certify that this Report is complete and correct and all equipment and material used and work performed during this Reporting period are in compliance with the contract plans and specifications, to the best of my knowledge, except as noted above.</b>				
QC REPRESENTATIVE'S SIGNATURE		DATE	SUPERINTENDENT'S INITIALS	DATE

<b>TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE</b> (Read instructions on the reverse side prior to initiating this form)				DATE 06/06/2002		TRANSMITTAL NO. 02486-37.2			
<b>SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS</b>								(This section will be initiated by the contractor)	
TO: Grand Haven Area Office 307 South Harbor Street P. O. Box 629 Grand Haven, MI 49417			FROM: ABC Company, Inc 555 Imagination Park Road Fantasy, MI 49494		CONTRACT NO. DACW35-02-C-#### NA		CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input checked="" type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL 02486-37.1		
SPECIFICATION SEC. NO. (Cover only one section with each transmittal) 02486			PROJECT TITLE AND LOCATION				CHECK ONE: THIS TRANSMITTAL IS FOR <input checked="" type="checkbox"/> FIO <input type="checkbox"/> GOV'T. APPROVAL		
ITEM NO.	DESCRIPTION OF ITEM SUBMITTED (Type size, model number/etc.)	MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. (See instruction no. 8)	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE	VARIATION (See Instruction No. 6)	FOR CE USE CODE	
a.	b.	c.	d.	SPEC. PARA. NO. e.	DRAWING SHEET NO. f.	g.	h.	i.	
12	Production Test Results	DATA	3	3.2.3.4				F	
REMARKS				I certify that the above submitted items have been reviewed in detail and are correct and in the strict conformance with the contract drawings and specifications except as otherwise stated.  <div style="border-top: 1px solid black; width: 100%;"></div> NAME AND SIGNATURE OF CONTRACTOR					
<b>SECTION II - APPROVAL ACTION</b>									
ENCLOSURES RETURNED (List by item No.)			NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY				DATE		

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION EMERGENCY SHORELINE PROTECTION - SECTION 14 - MOSEL						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASS SIFIC ATION REV WR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/  DATE RCD FROM CONTR	APPROVING AUTHORITY				MAILED TO CONTR/  DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION		DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01025	SD-01 Preconstruction Submittals														
			Weight Certificates														
		01100	SD-01 Preconstruction Submittals														
			Accident Prevention Plan	1.18.1													
			Payrolls and Basic Records	1.18.2													
			Progress Chart	1.18.3	G AOF												
			Non-listed, Non-Commercially	2.1.1	G ECD												
			Active Stone or Material Source														
			Notice to Mariners	1.5													
			Buoy Relocation Position														
			Utility Locating Plan	1.7	G AOF												
			Utility Location Findings	1.7	G AOF												
			Traffic Control Plan	1.13	G AOF												
			Survey Note Format	1.15.2	G ECD												
			SD-07 Certificates														
			As-Built Technician's	2.2													
			Qualifications														
			As-built Drawings	2.2	G AOF												
			Survey Information	1.15.2													
		01101	SD-01 Preconstruction Submittals														
			Additional Property Agreements	1.2.2	G RED												
		01130	SD-01 Preconstruction Submittals														
			Environmental Protection Plan	1.5	G AOF												
		01451	SD-01 Preconstruction Submittals														
			Quality Control Plan	3.2	G AOF												
			Preparatory Inspection Checklist	3.6.1													

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION EMERGENCY SHORELINE PROTECTION - SECTION 14 - MOSEL						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASSIFICATION OR REVIEWER	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/  DATE RCD FROM CONTR	APPROVING AUTHORITY				MAILED TO CONTR/  DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION		DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01451	Initial Inspection Checklist	3.6.2													
			Daily Inspection Reports	3.9													
			CQC System Manager	3.4.2	G AOF												
			CQC System Manager	3.4.2	G AOF												
		01525	SD-01 Preconstruction Submittals														
			Site Safety & Health Officer Qualification (SSHO)		G AOF												
			Accident Prevention Plan (APP)	1.8	G AOF												
			Activity Hazard Analysis (AHA)	1.9	G AOF												
			Crane Critical Lift Plan	1.8.1	G AOF												
			SD-06 Test Reports														
			Reports	1.13													
			Accident Reports	1.13.1													
			Monthly Exposure Reports	1.13.3													
			Regulatory Citations and Violations	1.13.4													
			Crane Reports	1.13.5													
			Certificate of Compliance (Crane)														
			SD-07 Certificates														
			Confined Space Entry Permit														
		01580	SD-02 Shop Drawings														
			Sign Layouts	2.1.2.1	G AOF												
		02139	SD-01 Preconstruction Submittals														
			Construction Equipment														
			Work Plan		G AOF												
			SD-11 Closeout Submittals														

# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION EMERGENCY SHORELINE PROTECTION - SECTION 14 - MOSEL						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH	GOVT CLASS SPEC ATTOR N	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/  DATE RCD FROM CONTR	APPROVING AUTHORITY				MAILED TO CONTR/  DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION		DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02139	Check Survey Records														
		02373	SD-01 Preconstruction Submittals														
			Thread	2.1.2	G AOF												
			Manufacturing Quality Control		G AOF												
			Manual Sampling and Testing														
			SD-04 Samples														
			Quality Assurance Samples and Tests	3.1	G AOF												
			SD-07 Certificates														
			Geotextile	2.1.1	G AOF												
		02486	SD-01 Preconstruction Submittals														
			Changes to Existing Condition (Check Surveys)		G AOF.												
			Displacement Gauge Installation Data		G AOF.												
			Gauging Table Data														
			Equipment Data														
			Stone Source		G AOF												
			Alternate Stone Source Data		G ECD												
			Redesign Data		G ECD												
			Stone Production Testing Plan		G ECD												
			Stone Material Control (SMC) Plan		G ECD												
			Revision of SMC Plan or Inspection Staffing	1.5	G ECD												
			Bilk Specific Gravity of Stone		G ECD												



# SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION EMERGENCY SHORELINE PROTECTION - SECTION 14 - MOSEL						CONTRACTOR											
ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	GOVT CLASS SPEC ATTOR NOR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION		DATE FWD TO APPR AUTH/  DATE RCD FROM CONTR	APPROVING AUTHORITY				MAILED TO CONTR/  DATE RCD FRM APPR AUTH	REMARKS
						SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION		DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		02486	SD-07 Certificates														
			Weigh Scale Certification		G AOF												
			Certified Weight Scale Tickets														
			SMC Field Supervisor	1.6	G ECD												
			Qualifications														
			SD-06 Test Reports														
			Specific Gravity of Stone														
			Check Survey Data														
			SMC Reports	1.7													
		02540	SD-02 Shop Drawings														
			Shop Drawings		G ECD												
			Detailed Descriptive Drawings		G ECD												
			As-Built Drawings		G ECD												
			SD-08 Manufacturer's Instructions														
			Material Safety and Data Sheets (MSDS)		G ECD												
			SD-01 Preconstruction Submittals														
			Schedule		G ECD												
			HDD WORK PLAN		G ECD												
			Accident Prevention Plan		G AOF												
			Protection of Existing Utilities		G ECD												
			SD-07 Certificates														
			QUALIFICATIONS	1.5	G ECD												

TRANSMITTAL OF SHOP DRWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE <i>(Read instructions on the reverse side prior to initiating this form)</i>					DATE		TRANSMITTAL NO.		
SECTION I – REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS <i>(This section will be initiated by the contractor)</i>									
TO:		FROM:			CONTRACT NO:		CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL_____		
SPECIFICATION SEC. NO <i>(Cover only one section with each transmittal)</i>			PROJECT TITLE AND LOCATION						
ITEM NO.	DISCRIPTION OF ITEMS SUBMITTED <i>(Type size, model number/etc.)</i>		MFG OR CONTR. CAT., CURVE DRAWING OR BROCHURE NO. <i>(See instruction no. 8)</i>	NO. OF COPIES	CONTRACT REFERENCE DOCUMENT		FOR CONTRACTOR USE CODE	VARIATION <i>(see Instruction No. 6)</i>	FOR CE USE CODE
a.	b.		c.	d.	SPEC. PARA. NO.	DRAWING SHEET NO.	g.	h.	i.
REMARKS					I certify that the above submitted items have been reviewed in detail and are correct and in strict conformance with the contract drawings and specifications except as otherwise stated.  NAME AND SIGNATURE OF CONTRACTOR				
SECTION II – APPROVAL ACTION									
ENCLOSURES RETURNED (List by Item No.)			NAME, TITLE, AND SIGNATURE OF APPROVING AUTHORITY				DATE		

## INSTRUCTIONS

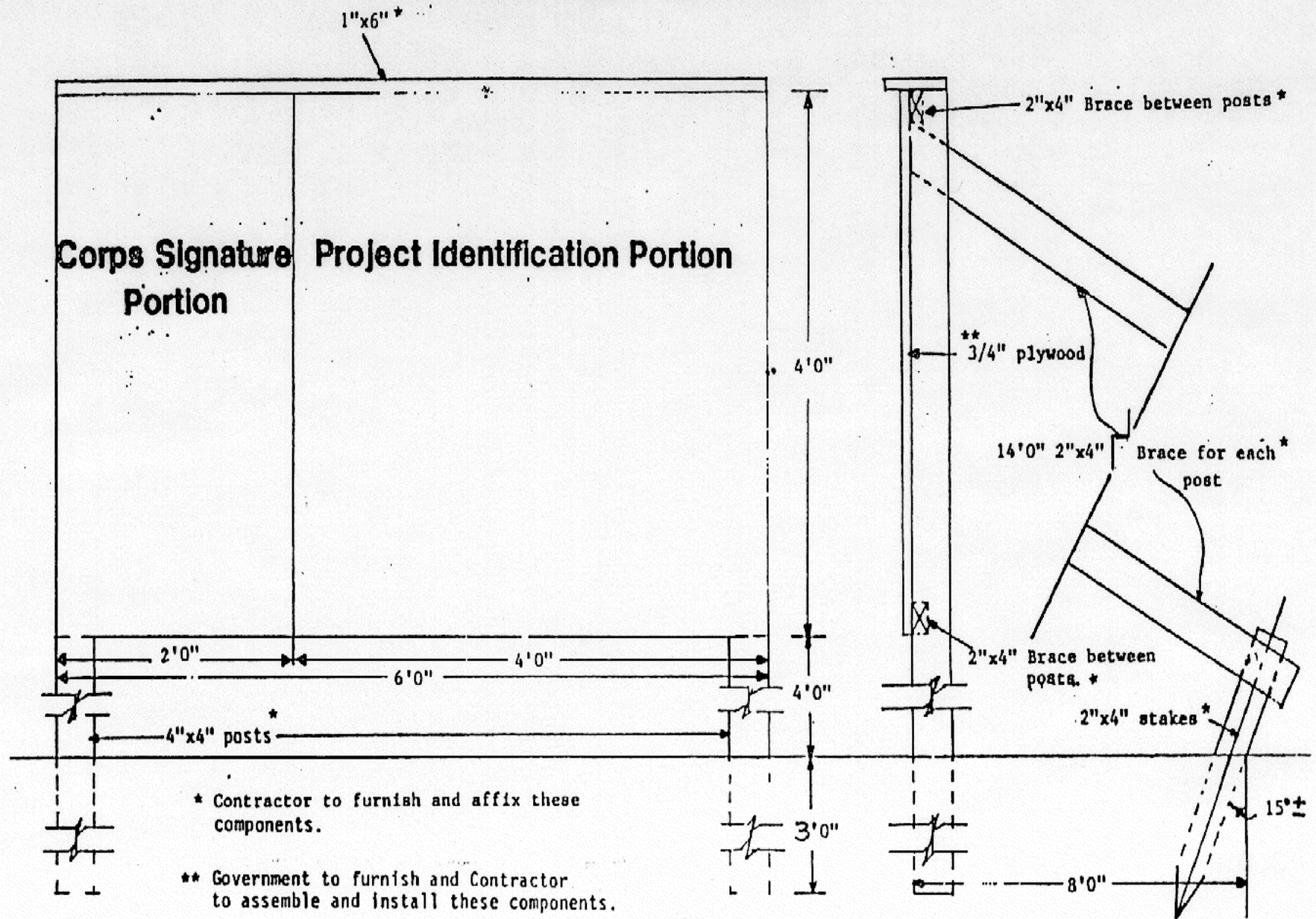
1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288 for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specification -- also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

### THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

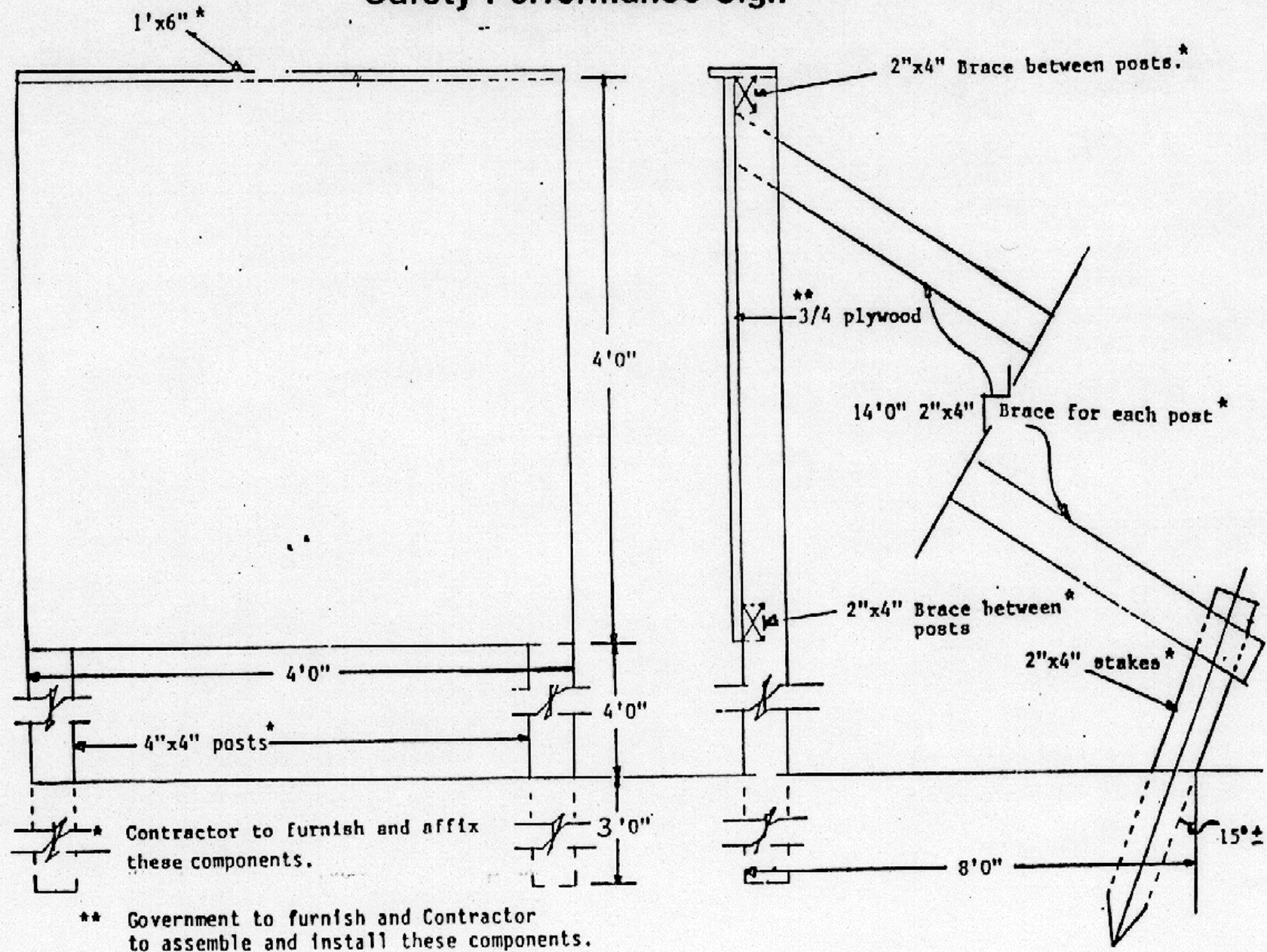
A -- Approved as submitted.	E -- Disapproved (see attached)
B -- Approved, except as noted on drawings.	F -- Receipt acknowledged
C -- Approved, except as noted on drawings Refer to attached sheet resubmission required.	FX -- Receipt acknowledged, does not comply as noted with contract requirements
D -- Will be returned by separate correspondence.	G -- Other ( <i>Specify</i> )

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

# Construction Project Sign



## Safety Performance Sign





Before The  
State Of Wisconsin  
DIVISION OF HEARINGS AND APPEALS

In the Matter of Sheboygan County Highway  
Department for a Permit to Grade More Than  
10,000 Square Feet on the Bank of Lake Michigan  
Located in the Town of Mosel, Sheboygan County,  
Wisconsin

Case No. 3-SE-02-60-200SH

FINDINGS OF FACT, CONCLUSIONS OF LAW AND PERMIT

Mr. Roger Laning, Commissioner of the Sheboygan County Highway Department, 1211 North 23<sup>rd</sup> Street, Sheboygan, Wisconsin, 53081, has applied to the Department of Natural Resources for a permit to grade more than 10,000 square feet on the bank of Lake Michigan and place a rock revetment at the toe of the slope. The proposed project would involve cutting and filling along 500 feet of shoreline, installation of a drainage system to direct water down the slope, and placement of a large rock revetment at the base to stabilize the slope so that Highway LS will not be in danger of collapse. The proposed project has been designed by the US Army Corps of Engineers and would be partially funded by that agency. The County has not made a final determination on whether to proceed with the proposed project and no work will be done at this site until approval is obtained from affected landowners. The proposed project is located in SE ¼, SW ¼, S10, T16N, R23E, Town of Mosel, Sheboygan County, along Highway LS.

The Department of Natural Resources issued Notice of Proposed Grading and Revetment which stated that unless written objection was made within 30 days of publication of the Notice, the Department may issue a decision without a hearing. Timely objections were received. On October 29, 2003, the Department filed a Request for Hearing with the Division of Hearings and Appeals.

Pursuant to due notice hearing was held on November 25, 2003, at Sheboygan, Wisconsin, Jeffrey D. Boldt, administrative law judge presiding.

In accordance with Wis. Stat. §§ 227.47 and 227.53(1)(c), the PARTIES to this proceeding are certified as follows:

Sheboygan County Highway Department, by

✓ Roger Laning, Highway Commissioner  
1211 North 23<sup>rd</sup> Street  
Sheboygan, WI 53081

ENCLOSURE 11

Jerald Holub, County Board Supervisor  
W711 Orchard Beach Drive  
Sheboygan, WI 53083

Department of Natural Resources, by

Kathi Kramase, Water Management Specialist  
P. O. Box 408  
Plymouth, WI 53073

Lynn Lindorfer  
N8982 County Road LS  
Sheboygan, WI 53083

Jeff Rochon and Mickey Judkins  
S8677 State Road 37  
Eau Claire, WI 54703

#### FINDINGS OF FACT

1. Mr. Roger Laning, Commissioner of the Sheboygan County Highway Department, 1211 North 23<sup>rd</sup> Street, Sheboygan, Wisconsin, 53081, completed filing an application with the Department for a permit under Wis. Stat. §§ 30.12 and 30.19, to grade more than 10,000 square feet on the bank of Lake Michigan and place a rock revetment on the bed of Lake Michigan, Town of Mosel, Sheboygan County. The Department and the applicant have fulfilled all procedural requirements of Wis. Stat. §§ 30.12 and 30.02.
2. The co-applicants own real property located in the SE ¼ of the SW ¼ in Section 10, Township 16 North, Range 23 East, Sheboygan County. The above-described property abuts Lake Michigan which is navigable in fact at the project site.
3. The County does not own riparian frontage, but holds an easement for the public roadway. The neighboring riparians, Robert and Lynn Lindorfer and Walter and Verna Schelk, have signed off on the project as co-applicants. (Ex. 1)
4. The applicant proposes to construct a rock revetment and to grade along the bank of Lake Michigan to stabilize the bank and prevent the collapse of County Highway LS. The project would cover an area of approximately 500 feet of frontage. The bank will be re-graded to a slope of approximately 2 to 1. Large field armor stone will be placed along this 500-foot area, roughly one third of the way up the bank. Further, drainage tiles will be placed to redirect and control both run off and groundwater, which at present undercut bank stability. The HDPE pipe will be installed using horizontal directional drilling. Large rock revetment will be over geotextile fabric at the toe of the slope. To prevent flanking, the end 11 feet of the north and south edges of the protection shall be tied into the existing bank.

5. The purpose is to ensure the future safety and stability of County Highway LS. The U.S. Army Corps of Engineers (USACOE) has designed the project and provided significant funding. County Highway "LS" is an important and scenic link between Sheboygan and Manitowoc Counties, particularly the area along the Lake Michigan Shoreline from the City of Sheboygan to the Village of Cleveland and on to the City of Manitowoc. The roadway area that is most threatened is located approximately 5 miles north of the City of Sheboygan, immediately north of the PGA golf course known as "Whistling Straits." There was a slough-off of approximately 300 feet, which has slumped the bank within 6 to 9 feet of the existing roadway. The project has qualified as a safety "Emergency Shoreline Protection" project eligible for USACOE funding. (Ex. 2)

6. The County has explored the option of relocating the roadway, but has chosen to stabilize the bank due to concerns relating to cost, the breaking up of farmland, and the impact on existing residences located on the west side of the roadway facing Lake Michigan. (Laning) These residents would be required to change their access to their back yards, impacting wells, septic systems and property values. (Ex. 2) As a result of these considerations, "local officials prefer to rule out the roadway relocation options." The County has closed the road to truck traffic, has reduced the speed limit to 45 mph, and has imposed weight restrictions that allows for only one bus on the road at a time. (Ex. 2)

Other reputable consultants have previously argued in favor of road relocation. (Ex. 47) The objectors argue in part that a large area of the roadway is ultimately threatened by erosion. However, the instant permit proceeding is not about which option is the best course, but solely whether the proposed project meets the requirements for the grading and riprap permits.

7. The only objections to the proposed project have been made by the neighboring riparians, Jeff Rochon and Mickey Judkins (the objectors). The objectors are concerned that the proposed project will have an impact upon the stability of the bank in front of their property. The project area approximates property boundaries and the project does not extend as far south as the Rochon-Judkins' property. Littoral transport patterns move sand from north to south, so the greatest impact would be expected south of the project area. However, all of the expert testimony indicates that there will be minimal impacts, if any, to the Rochon-Judkins riparian area.

The USACOE authorized a 22-page report prepared by W. F. Baird and Ass. Coastal Engineers, Ltd., directly addressing this issue. (Ex. 9) Reductions in sand volume in theory could lead to bluff recession. The report concluded as follows:

If the revetment is constructed, the resulting deficit in sand and gravel may result in an equivalent volume reduction for the fillet beaches adjacent to the Whistling Straits Golf Course and further to the south. However, even if these reductions in beach volume are only limited to the four pocket beaches north of the Camp Haven revetment and the 50 years of cumulative losses are assumed to occur immediately following the construction of the revetment, only very minor impacts on local recession rates are predicted with the COSMOS model. For example, for a 38-year simulation, bluff recession only increased 1.8%



Locally there is the potential for flanking erosion adjacent to the two terminus points of the revetment. An example of this process was presented for the conditions immediately north of the Camp Haven revetment between 1961 and 1992. This potential impact can be addressed with the termination details on the construction drawings. (Id.)

Mr. Ross of the USACOE concluded that Rochon-Judkins would not notice such a slight reduction.

Further, the potential for flanking erosion has been addressed in the final design plans by means of designing the structure to be turned and tied into the bank. (Ross)

8. The objectors argued that there would be likely detrimental cumulative impacts to their riparian frontage as a result of this project because of existing impacts associated with construction of Whistling Straits Golf Course. However, Mr. Ross of the USACOE provided unrebutted expert testimony that the study considered the impacts from Whistling Straits in reaching its conclusion that there would be no detrimental impact upon the Rochon-Judkins property. (Ex. 14) The County should consider allowing the Rochon-Judkins to put in a drain tile in conjunction with this project. However, any such effort is voluntary on behalf of the County, as the record does not support requiring such a condition in the permit in the absence of expert testimony on behalf of the objectors.

9. The proposed project will impact .16 acres of wetlands. The parties stipulated that there would be no detrimental impact to wetlands from the proposed project and that the project met the requirements of NR 103 and 299.

10. The proposed structure will not materially obstruct existing navigation on Lake Michigan and will not be detrimental to the public interest upon compliance with the conditions of this permit.

11. The applicant is financially capable of constructing, maintaining, monitoring or removing the structure if it should be found in the public interest to do so.

12. The proposed structure will not reduce the effective flood flow capacity of Lake Michigan upon compliance with the conditions in the permit.

13. The proposed structure will not adversely affect water quality nor will it increase water pollution in Lake Michigan. The structure will not cause environmental pollution as defined in Wis. Stat. § 299.01(4) if the structure is built and maintained in accordance with this permit.

14. The proposed project will not injure public rights in fish or wildlife habitat values. (Kramasz) There is minimal fish habitat in the near shore area. The project will not have a detrimental impact upon wildlife, principally migratory birds, making use of the area. (Id.)

15. The proposed project will not have a detrimental impact on public access to the Lake Michigan shoreline. The project is designed to allow as much access as is consistent with the project purpose of stabilizing the bank in the project area. Any minimal impacts on public access from placement of the armor stone are insignificant when balanced against the dangers that collapse of the bank and roadway poses both to users of the highway and users of Lake Michigan.

16. The Department of Natural Resources has complied with the procedural requirements of Wis. Stat. § 1.11, and Wis. Admin. Code ch. NR 150, regarding assessment of environmental impact.

### DISCUSSION

Given their proximity to the proposed project area and their concern relating to previous shoreline protection projects, the objector's concerns are reasonable. However, a clear preponderance of the credible evidence, including all of the expert testimony, establishes that the applicants have carried their burden of proof as to both permits.

The applicants have carried their burden of proof in demonstrating that the proposed project will meet the standards of Wis. Stat. §§ 30.12(3) and 30.19(4). There is no question that the proposed riprap and revetment are needed "for the purpose of protecting the bank and adjacent land from erosion" within the meaning of Wis. Stat. § 30.12(3). The bank has sloughed-off, within 6 to 9 feet of the county roadway. This represents an urgent threat to public safety.

Further, the County and USACOE provided un rebutted expert testimony that the proposed grading "will not cause environmental pollution . . . and will result in no material injury to the rights of any neighboring riparian owners," so long as the project is undertaken according to the permit conditions below. The project is designed to prevent exactly the type of "flanking" which the objectors are most concerned about. (Ross)

As a courtesy to the Rochon-Judkins's, the County should consider allowing them an opportunity to tie into the drain tile piping if they so request within 21 days of the issuance of the permit. Because the record does not reflect that this is necessary to prevent damage to the neighboring property, this suggestion is made voluntary for the County, both in terms of design and as to cost.

### CONCLUSIONS OF LAW

1. The Division of Hearings and Appeals has authority under Wis. Stat. §§ 30.12 and 227.43(1)(b), and in accordance with the foregoing Findings of Fact, to issue a permit for the construction and maintenance of said structure subject to the conditions specified.

2. The co-applicants are riparian owners within the meaning of Wis. Stat. § 30.12.

3. The proposed facility described in the Findings of Fact constitutes riprap placed on the bed and bank of navigable waters for "the purpose of protecting the bank and adjacent land from erosion" within the meaning of Wis. Stat. § 30.12(3).

4. The proposed grading will not injure public rights or interest in Lake Michigan and will not cause environmental pollution as defined in Wis. Stat. § 299.01(4), and will result in no material injury to the rights of any neighboring riparian owners, so long as the project is undertaken in accordance with the permit conditions set forth below. The project as proposed conforms to the requirements of laws for the platting of land and for sanitation and meets the standards for issuance of a grading permit set forth in Wis. Stat. § 30.19(4).

5. The parties stipulated that the project would meet all applicable standards relating to wetlands as set forth in Wis. Admin. Code § NR 103 and NR 299.

6. The project is a type III action under Wis. Admin. Code NR 150.03(8)(f)4. Type III actions do not require the preparation of a formal environmental impact assessment.

#### PERMIT

AND THERE HEREBY DOES ISSUE AND IS GRANTED to the permittee, a permit under Wis. Stat. §§ 30.12 and 30.19, for the construction of a structure as described in the foregoing Findings of Fact, subject, however, to the conditions that:

1. The authority herein granted can be amended or rescinded if the structure becomes a material obstruction to navigation or becomes detrimental to the public interest.

2. The permittee shall waive any objection to the free and unlimited inspection of the premises, site or facility at any time by any employee of the Department of Natural Resources for the purpose of investigating the construction, operation and maintenance of the project.

3. The permittee shall obtain any necessary authority needed under local zoning ordinances and from the U.S. Army Corps of Engineers.

4. The permittee shall submit a re-vegetation plan acceptable to the DNR prior to undertaking project construction. Final site stabilization requires the re-establishment of native vegetation and must not contain any exotic species.

5. The permittee must notify Kathi Kramasz at phone 920-892-8756 before starting construction and again not more than 5 days after the project is complete.

6. The permittee must complete the project as described on or before December 1, 2004. If the permittee will not complete the project by this date, the permittee must submit a written request for an extension prior to the expiration date of the permit. The permittee's request must identify the requested extension date and the reason for the extension. A permit

extension may be granted, for good cause, by the Department. The permittee may not begin or continue construction after the original permit expiration date unless the Department grants a new permit or permit extension in writing.

7. This permit does not authorize any work other than what the permittee specifically described in their application and plans, and as modified by the conditions of this permit. If the permittee wishes to alter the project or permit conditions, the permittee must first obtain written approval of the Department.

8. The Department may modify or revoke this permit if the project is not completed according to the terms of the permit, or if the Department determines the activity is detrimental to the public interest.

9. The permittee must post a copy of this permit at a conspicuous location on the project site, visible from the waterway, for at least five days prior to construction, and remaining at least five days after construction. The permittee must also have a copy of the permit and approved plan available at the project site at all times until the project is complete.

10. The permittee's acceptance of this permit and efforts to begin work on this project signify that they have read, understood and agreed to follow all conditions of this permit.

11. The permittee must submit a series of photographs to the Department, within two weeks of completion of work on the site. The photographs must be taken from different vantage points and depict all work authorized by this permit.

12. The permittee, or any agent, and any involved contractors or consultants may be considered a party to the violation pursuant to Wis. Stat. § 30.292 for any violations of Wis. Stat. ch. 30 or this permit.

13. Construction shall be accomplished in such a manner as to minimize erosion and siltation into surface waters. Erosion control measures such as silt fence and straw bales must meet or exceed the standards in the Wisconsin Construction Site Best Management Practices Handbook.

14. The permittee must submit a detailed plan for the project at least 2 weeks prior to beginning construction. This plan must include the site specific construction sequence, details on the location of the access drive and how it will be constructed, information on where any fill material will be hauled from, a detailed revegetation plan that includes natural/native plantings that are conducive the slope stability, a detailed maintenance plan with information as to responsible parties, and a detailed erosion control plan specific to this site.

15. The contractor, the county, and any other necessary parties must meet with the DNR for a preconstruction meeting at least one week prior to work beginning.

16. After the site is 80% stabilized, or prior to at the direction of the Department, all temporary erosion control measures must be removed and disposed of properly. Any remaining

temporary erosion control devices after this point constitute littering and may be enforced as determined necessary by the department.

17. Any area where topsoil is exposed during construction must be immediately seeded and mulched or ripped to prevent soil from being eroded and washed into the waterway.

18. Appropriate erosion control measures must be in-place and effective during every phase of this project. Erosion control measures such as silt fence and straw bales must meet or exceed the standards in the Wisconsin Construction Site Best Management Practices Handbook.

19. Erosion control measures must be in place at the end of each working day. Erosion control measures must be inspected, and any necessary repairs or maintenance performed, after every rainfall exceeding ½ inch and at least once per week.

20. No portion of the bank or upland which is altered or disturbed and, as a result, unstable may remain unprotected for more than 7 days.

21. Site stabilization between October 1 and April 15 requires sodding or seeding and mulching (with a non-toxic tackifier).

22. The bank slopes must be no steeper than 2 feet horizontal to one-foot vertical after construction.

23. The permittee must not deposit or store any of the graded materials in any wetland or below the ordinary high water mark of any waterway. All graded materials must be placed out of the floodway of any stream.

24. The permittee must not operate any construction equipment below the ordinary high water mark of any waterway. If the contractor plans to operate on the beach the permittee must submit written notification of the type of equipment, the length of beach that will be traversed, and the length of distance that will be traversed. The permittee must include an emergency fuel clean up plan with this submittal and the Department must issue a permit amendment prior to any vehicle operation below the OHWM.

25. The permittee must supply a copy of this permit to every contractor associated with this project.

26. A filter cloth, or a gravel filter layer, must be placed under the riprap to extend the life of the structure and to reduce maintenance costs.

27. The project must be constructed in such a manner as to prevent upland soil losses and sediment deposition into surface waters.

28. The revetment wall must be constructed to conform as nearly as possible to the existing shoreline contours. Ends of the wall must be protected with a layer of rock tied into the bank to prevent flanking of the wall.

29. The revetment must be tied back into the neighboring properties to prevent flanking.

30. No other portion of any wetland may be disturbed beyond the 500' area designated in the plans.

31. The lakeward encroachment below the OHWM is limited to that needed to obtain a stable slope from the edge of the highway and must not exceed that shown on the plans.

32. If the revetment obstructs legal use of the lakeshore by the public due to water depth, slopes, etc. the property owners must allow passage over the revetment.

33. Any fill used for this project must be soil material as indicated in the project specifications and cannot be concrete, demolition debris, etc.

34. No further dumping of material over the bluff is to be done.

35. Once an access road is established, the revetment must be constructed from the bottom up. The toe stones must be keyed in as described in the plans.

36. The permittee is responsible for ensuring the safety of motorists on the road, neighbors, and construction vehicles that are involved with this project.

Dated at Madison, Wisconsin on December 18, 2003.

STATE OF WISCONSIN  
DIVISION OF HEARINGS AND APPEALS  
5005 University Avenue, Suite 201  
Madison, Wisconsin 53705  
Telephone: (608) 266-7709  
FAX: (608) 264-9885

By: Jeffrey D. Boldt  
Jeffrey D. Boldt  
Administrative Law Judge

NOTICE

Set out below is a list of alternative methods available to persons who may desire to obtain review of the attached decision of the Administrative Law Judge. This notice is provided to insure compliance with sec. 227.48, Stats., and sets out the rights of any party to this proceeding to petition for rehearing and administrative or judicial review of an adverse decision.

1. Any party to this proceeding adversely affected by the decision attached hereto has the right within twenty (20) days after entry of the decision, to petition the secretary of the Department of Natural Resources for review of the decision as provided by Wisconsin Administrative Code NR 2.20. A petition for review under this section is not a prerequisite for judicial review under secs. 227.52 and 227.53, Stats.
2. Any person aggrieved by the attached order may within twenty (20) days after service of such order or decision file with the Department of Natural Resources a written petition for rehearing pursuant to sec. 227.49, Stats. Rehearing may only be granted for those reasons set out in sec. 227.49(3), Stats. A petition under this section is not a prerequisite for judicial review under secs. 227.52 and 227.53, Stats.
3. Any person aggrieved by the attached decision which adversely affects the substantial interests of such person by action or inaction, affirmative or negative in form is entitled to judicial review by filing a petition therefor in accordance with the provisions of sec. 227.52 and 227.53, Stats. Said petition must be filed within thirty (30) days after service of the agency decision sought to be reviewed. If a rehearing is requested as noted in paragraph (2) above, any party seeking judicial review shall serve and file a petition for review within thirty (30) days after service of the order disposing of the rehearing application or within thirty (30) days after final disposition by operation of law. Since the decision of the Administrative Law Judge in the attached order is by law a decision of the Department of Natural Resources, any petition for judicial review shall name the Department of Natural Resources as the respondent. Persons desiring to file for judicial review are advised to closely examine all provisions of secs. 227.52 and 227.53, Stats., to insure strict compliance with all its requirements.

General Decision Number: WI030019 07/30/2004 WI19

Superseded General Decision Number: WI020019

State: Wisconsin

Construction Types: Heavy

Counties: Wisconsin Statewide.

HEAVY CONSTRUCTION PROJECTS (Excluding Tunnel, Sewer, and Water Lines), AND HOPPER DREDGE PROJECTS

Modification Number	Publication Date
0	06/13/2003
1	03/12/2004
2	04/16/2004
3	06/25/2004
4	07/16/2004
5	07/30/2004

BOIL0107-001 01/01/2004

	Rates	Fringes
Boilermaker		
Boilermaker.....	\$ 27.64	14.52
Small Boiler Repair (under		
25,000 lbs/hr).....	\$ 22.11	10.45

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BRWI0001-002 06/01/2004

CRAWFORD, JACKSON, JUNEAU, LA CROSSE, MONROE, TREMPLEAU, AND VERNON COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 24.88	11.55

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BRWI0002-002 06/01/2004

ASHLAND, BAYFIELD, DOUGLAS, AND IRON COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 29.64	11.35

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BRWI0003-002 06/01/2004

BROWN, DOOR, FLORENCE, KEWAUNEE, MARINETTE, AND OCONTO COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 24.88	11.50

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BRWI0004-002 06/01/2004

KENOSHA, RACINE, AND WALWORTH COUNTIES

Rates	Fringes
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Bricklayer.....	\$ 28.38	11.95
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BRWI0006-002 06/01/2004

ADAMS, CLARK, FOREST, LANGLADE, LINCOLN, MARATHON, MENOMINEE,  
ONEIDA, PORTAGE, PRICE, TAYLOR, VILAS AND WOOD COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 24.98	11.40

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BRWI0007-002 06/01/2004

GREEN, LAFAYETTE, AND ROCK COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 26.12	11.95

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\* BRWI0008-002 06/01/2004

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 28.38	11.15

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BRWI0009-001 06/01/2004

GREEN LAKE, MARQUETTE, OUTAGAMIE, SHAWANO, WAUPACA, WASHARA,  
AND WINNEBAGO COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 24.88	11.50

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BRWI0011-002 06/01/2004

CALUMET, FOND DU LAC, MANITOWOC, AND SHEBOYGAN COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 24.88	11.50

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BRWI0013-002 06/01/2004

DANE, GRANT, IOWA, AND RICHLAND COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 26.42	11.70

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BRWI0019-002 06/01/2004

BARRON, BUFFALO, BURNETT, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN,  
PIERCE, POLK, RUSK, ST. CROIX, SAWYER AND WASHBURN COUNTIES

	Rates	Fringes
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Bricklayer.....	\$ 24.53	11.85
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BRWI0021-002 06/01/2004

DODGE AND JEFFERSON COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 26.69	11.38

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BRWI0034-002 06/01/2004

COLUMBIA AND SAUK COUNTIES

	Rates	Fringes
Bricklayer.....	\$ 26.47	11.60

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CARP0087-001 05/01/2004

BURNETT (W. of Hwy 48), PIERCE (W. of Hwy 29), POLK (W. of Hwys 35, 48 & 65), AND ST. CROIX (W. of Hwy 65) COUNTIES

	Rates	Fringes
Carpenter & Piledrivermen.....	\$ 24.41	9.91

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\* CARP0252-002 06/01/2004

ADAMS, BARRON, BAYFIELD (Eastern 2/3), BROWN, BUFFALO, BURNETT (E. of Hwy 48), CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DANE, DODGE, DOOR, DUNN, EAU CLAIRE, FLORENCE (except area bordering Michigan State Line), FOND DU LAC, FOREST, GRANT, GREEN, GREEN LAKE, IOWA, IRON, JACKSON, JEFFERSON, JUNEAU, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE (except N.E. corner), MARQUETTE, MENOMINEE, MONROE, OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE (E. of Hwys 29 & 65), POLK (E. of Hwys 35, 48 & 65), PORTAGE, PRICE, RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN, ST CROIX (E. of Hwy 65), TAYLOR, TREMPLEAU, VERNON, VILAS, WALWORTH, WASHBURN, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
Carpenters		
Carpenter.....	\$ 24.31	10.43
Millwright.....	\$ 25.91	10.43
Piledriver.....	\$ 24.81	10.43

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\* CARP0252-010 06/01/2004

ASHLAND COUNTY

	Rates	Fringes
Carpenters		
Carpenter.....	\$ 22.02	10.43
Millwright.....	\$ 25.91	10.43
Pile Driver.....	\$ 24.81	10.43

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CARP0264-003 06/01/2004

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WAUKESHA, AND WASHINGTON  
COUNTIES

	Rates	Fringes
Carpenter.....	\$ 27.34	11.01

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CARP2337-001 06/01/2004

	Rates	Fringes
Piledriverman		
Zone A.....	\$ 25.76	14.37
Zone B.....	\$ 22.98	14.37

ZONE DEFINITIONS

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON COUNTIES  
ZONE B: KENOSHA & RACINE COUNTIES

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CARP2337-003 06/01/2004

	Rates	Fringes
Millwright		
Zone A.....	\$ 26.32	13.98
Zone B.....	\$ 25.27	13.78
Zone C.....	\$ 25.17	13.78
Zone D.....	\$ 25.32	13.78
Zone E.....	\$ 25.37	13.53

ZONE DEFINITIONS

ZONE A: MILWAUKEE, OZAUKEE, WAUKESHA AND WASHINGTON COUNTIES  
ZONE B: KENOSHA COUNTY  
ZONE C: RACINE COUNTY (Area East of Hwy 75)  
ZONE D: JEFFERSON (South of I-94), RACINE (West of Hwy 75),  
and WALWORTH COUNTIES  
ZONE E: DODGE AND JEFFERSON (North of I-94) COUNTIES

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ELEC0014-002 06/01/2004

ASHLAND, BARRON, BAYFIELD, BUFFALO, BURNETT, CHIPPEWA, CLARK  
(except Maryville, Colby, Unity, Sherman, Fremont, Lynn &  
Sherwood), CRAWFORD, DUNN, EAU CLAIRE, GRANT, IRON, JACKSON, LA  
CROSSE, MONROE, PEPIN, PIERCE, POLK, PRICE, RICHLAND, RUSK, ST  
CROIX, SAWYER, TAYLOR, TREMPPEALEAU, VERNON, AND WASHBURN  
COUNTIES

	Rates	Fringes
Electricians:.....	\$ 27.72	27.8%+4.00

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\* ELEC0127-002 06/01/2004

KENOSHA COUNTY

	Rates	Fringes
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Electricians:.....\$ 29.33            23.8%+5.00

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\* ELEC0158-002 06/01/2004

BROWN, DOOR, KEWAUNEE, MANITOWOC (except Schleswig),  
MARINETTE(Wausaukee and area South thereof), OCONTO, MENOMINEE  
(East of a line 6 miles West of the West boundary of Oconto  
County), SHAWANO (Except Area North of Townships of Aniwa and  
Hutchins) COUNTIES

Rates                      Fringes

Electricians:.....\$ 25.73            26.75%+6.46

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\* ELEC0159-003 06/01/2004

COLUMBIA, DANE, DODGE (Area West of Hwy 26, except Chester and  
Emmet Townships), GREEN, LAKE (except Townships of Berlin,  
Seneca, and St. Marie), IOWA, MARQUETTE (except Townships of  
Neshkoka, Crystal Lake, Newton, and Springfield), and SAUK  
COUNTIES

Rates                      Fringes

Electricians:.....\$ 27.31            29.2%+5.71

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\* ELEC0219-004 06/01/2004

FLORENCE COUNTY (Townships of Aurora, Commonwealth, Fern,  
Florence and Homestead) AND MARINETTE COUNTY (Township of  
Niagara)

Rates                      Fringes

Electricians:

Electrical contracts over  
\$90,000.....\$ 24.98            11.65  
Electrical contracts under  
\$90,000.....\$ 22.54            11.58

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ELEC0242-005 06/01/2004

DOUGLAS COUNTY

Rates                      Fringes

Electricians:.....\$ 27.42            54.5%

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\* ELEC0388-002 06/01/2004

ADAMS, CLARK (Colby, Freemont, Lynn, Mayville, Sherman,  
Sherwood, Unity), FOREST, JUNEAU, LANGLADE, LINCOLN, MARATHON,  
MARINETTE (Area North of the town of Wausaukee), MENOMINEE  
(Area West of a line 6 miles West of the West boundary of  
Oconto County), ONEIDA, PORTAGE, SHAWANO (Area North of the  
townships of Aniwa and Hutchins), VILAS AND WOOD COUNTIES

Rates                      Fringes

Electricians:.....\$ 25.00	12.16
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\* ELEC0430-002 06/01/2004

RACINE COUNTY (Except Burlington Township)

	Rates	Fringes
Electricians:.....\$ 28.77		13.38

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ELEC0494-005 06/01/2004

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Electricians:.....\$ 27.37		15.85

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ELEC0494-006 06/01/2004

CALUMET (Township of New Holstein), FOND DU LAC (Except Waupun), MANITOWOC (Schleswig), and SHEBOYGAN COUNTIES

	Rates	Fringes
Electricians:.....\$ 24.70		15.46

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\* ELEC0577-003 06/01/2004

CALUMET (except Township of New Holstein), GREEN LAKE (N. part including Townships of Berlin, St Marie, and Seneca), MARQUETTE (N. part including Townships of Crystal Lake, Neshkoro, Newton, and Springfield), OUTAGAMIE, WAUPACA, WAUSHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
Electricians:.....\$ 25.15		12.36

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\* ELEC0890-003 06/01/2004

DODGE (Emmet Township only), GREEN, JEFFERSON, LAFAYETTE, RACINE (Burlington Township), ROCK AND WALWORTH COUNTIES

	Rates	Fringes
Electricians:.....\$ 26.60		13.32

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ELEC0953-001 06/01/2004

	Rates	Fringes
Line Construction:		
(1) Lineman.....\$ 29.20		4.25+28.75%
(2) Heavy Equipment Operator\$ 26.28		4.25+28.75%
(3) Equipment Operator.....\$ 23.96		4.25+28.75%
(4) Heavy Groundman Driver..\$ 20.44		4.25+28.75%
(5) Light Groundman Driver..\$ 18.98		4.25+28.75%
(6) Groundman.....\$ 16.06		4.25+28.75%

KENOSHA, MILWAUKEE, OZAUKEE, RACINE, WASHINGTON, AND WAUKESHA  
COUNTIES

	Rates	Fringes
Power Equipment Operator		
Group 1.....	\$ 30.39	14.20
Group 2.....	\$ 29.89	14.20
Group 3.....	\$ 29.39	14.20
Group 4.....	\$ 29.10	14.20
Group 5.....	\$ 27.22	14.20
Group 6.....	\$ 22.07	14.20

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, Tower Cranes, and Derricks with or w/o attachments with a lifting capacity of over 100 tons; or Cranes, Tower Cranes, and Derricks with boom, leads, and/or jib lengths measuring 176 feet or longer; Boring Machines (directional); Master Mechanic

GROUP 2: Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of 100 tons or less; or Cranes, Tower Cranes and Derricks with boom, leads and/or jib lengths measuring 175 feet or less; Backhoes (excavators) having a manufacturer's rated capacity of 3 cu yds and over; Caisson Rigs; Pile Drivers; Boring Machines (vertical or horizontal)

GROUP 3: Backhoes (excavators) under 3 cu yd; Traveling Crane (bridge type); Skid Rigs; Dredge Operator; Concrete Paver (over 27E); Concrete Spreader and Distributor; Forklift (machinery- moving / steel erection); Hydro Blaster, 10,000 psi and over

GROUP 4: Material Hoists; Stack Hoists; Hydraulic Backhoe (tractor or truck mounted); Hydraulic Crane, 5 tons or under (tractor or truck mounted); Concrete Pumps; Tractor over 40 hp; Bulldozer over 40 hp; End Loader over 40 hp; Motor Patrol; Scraper Operator; Sideboom; Straddle Carrier; Mechanic and Welder; Bituminous Plant and Paver Operator; Roller over 5 tons; Rail Leveling Machine (Railroad); Tie Placer; Tie Extractor; Tie Tamper; Stone Leveler; Rotary Drill Operator and Blaster; Percussion Drill Operator; Air Track Drill and/or Hammers; Tencher (wheel type or chain type having 8 inch or larger bucket); Milling Machine

GROUP 5: Backfiller; Concrete Auto Breaker (large); Concrete Finishing Machines (road type); Rubber Tired Roller; Concrete Batch Hopper; Concrete Conveyor Systems; Grout Pumps; Concrete Mixers (14S or over); Screw Type Pumps and Gypsum Pumps; Tractor, Bulldozer, End Loader (under 40 hp); Trencher (chain type, bucket under 8 inch); Industrial Locomotives; Rollers under 5 tons; Firemen (pile drivers and derricks); Manhoist; Lift Slab Machines; Robotic Tool Carrier with or without attachments

GROUP 6: Tampers - Compactors (riding type); Assistant

Engineer; A-Frames and Winch Trucks; Concrete Auto Breaker;  
 Hydrohammers (small); Brooms and Sweepers; Hoist (tuggers);  
 Stump Chippers (large); Boats (Tug, Safety, Work Barges,  
 Launch); Shouldering Machine Operator; Screed Operator;  
 Screed Operator; Stone Crushers and Screening Plants;  
 Prestress Machines; Screed Operators (milling machine),  
 Farm or Industrial Tractor Mounted Equipment; Post Hole  
 Digger; Fireman (asphalt plants); Air Compressors, over and  
 under 400 CFM; Generators, over and under 150 KW; Augers  
 (vertical and horizontal); Air, Electric, Hydraulic Jacks  
 (slipform); Skid Steer Loaders (with or without  
 attachments); Boiler Operators (temporary heat);  
 Refrigeration Plant/Freeze Machines; Power Pack  
 Vibratory/Ultra Sound Drivers and Extractors; Welding  
 Machines; Heaters (mechanical); Pumps; Winches (small  
 electric); Oiler and Greaser; Conveyor; Forklifts;  
 Elevators: Automatic Hoists; Pumps (well points);  
 Combination Small Equipment Operators

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 ENGI0139-003 06/01/2004

STATEWIDE (Except Kenosha, Milwaukee, Ozaukee, Racine,  
 Washington, and Waukesha)

	Rates	Fringes
Power Equipment Operator		
Group 1.....	\$ 27.67	13.70
Group 2.....	\$ 27.17	13.70
Group 3.....	\$ 26.67	13.70
Group 4.....	\$ 26.14	13.70
Group 5.....	\$ 24.07	13.70
Group 6.....	\$ 23.44	13.70

#### POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, Tower Cranes and Derricks with or without  
 attachments with a lifting capacity of over 100 tons;  
 Cranes, Tower Cranes, and Derricks with boom, leads and/or  
 jib lengths 176 ft or longer.

GROUP 2: Backhoes (Excavators) having a manufacturer's rated  
 capacity of 3 cu yd and over; Cranes, Tower Cranes and  
 Derricks with or without attachments with a lifting  
 capacity of 100 tons or less; Cranes, Tower Cranes, and  
 Derricks with boom, leads, and/or jib lengths 175 ft or  
 less; Caisson Rigs; Pile Driver

GROUP 3: Backhoes (Excavators) under 3 cu yd; Travelling  
 Crane (bridge type); Milling Machine; Concrete Paver over  
 27 E; Concrete Spreader and Distributor; Concrete Laser  
 Screed; Concrete Grinder and Planing Machine; Slipform Curb  
 and Gutter Machine; Boring Machine (Directional); Dredge  
 Operator; Skid Rigs

GROUP 4: Hydraulic Backhoe (tractor or truck mounted);  
 Hydraulic Crane, 10 tons or less; Tractor, Bulldozer, or  
 End Loader (over 40 hp); Motor Patrol; Scraper Operator;  
 Bituminous Plant and Paver Operator; Screed-Milling  
 Machine; Roller over 5 tons; Concrete and Grout Pumps;

Hydro Blaster, 10,000 psi and over; Rotary Drill Operator; Percussion Drilling Machine; Air Track Drill with or without integral hammer; Blaster; Boring Machine (vertical or horizontal); Side Boom; Trencher, wheel type or chain type having 8 inch or larger bucket; Rail Leveling Machine (Railroad); Tie Placer; Tie Extractor; Tie Tamper; Stone Leveler; Straddle Carrier; Material Hoists; Stack Hoist; Man Hoists; Mechanic and Welder

GROUP 5: Tractor, Bulldozer, or Endloader (under 40 hp); Tampers -Compactors, riding type; Stump Chipper, large; Roller, Rubber Tire; Backfiller; Trencher, chain type (bucket under 8 inch); Concrete Auto Breaker, large; Concrete Finishing Machine (road type); Concrete Batch Hopper; Concrete Conveyor Systems; Concrete Mixers, 14S or over; Pumps, Screw Type and Gypsum); Hydrohammers, small; Brooms and Sweepers; Lift Slab Machine; Roller under 5 tons; Industrial Locomotives; Fireman (Pile Drivers and Derricks); Pumps (well points); Hoists, automatic; A-Frames and Winch Trucks; Hoists (tuggers); Boats (Tug, Safety, Work Barges and Launches); Assistant Engineer

GROUP 6: Shouldering Machine Operator; Farm or Industrial Tractor mounted equipment; Post Hole Digger; Auger (vertical and horizontal); Skid Steer Loader with or without attachments; Robotic Tool Carrier with or without attachments; Power Pack Vibratory/Ultra Sound Driver and Extractor; Fireman (Asphalt Plants); Screed Operator; Stone Crushers and Screening Plants; Air, Electric, Hydraulic Jacks (Slip Form); Prestress Machines; Air Compressor, 400 CFM or over; Refrigeration Plant/Freeze Machine; Boiler Operators (temporary heat); Forklifts; Welding Machines; Generators, over or under 150 kw; Compressors, under 400 CFM; Heaters, Mechanical; Combination small equipment operator; Winches, small electric; Oiler; Greaser; Conveyor; Elevator Operator

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 \* IRON0008-002 06/01/2004

BROWN, CALUMET, DOOR, FOND DU LAC, KEWAUNEE, MANITOWOC, MARINETTE, OCONTO, OUTAGAMI, SHAWANO, SHEBOYGAN, AND WINNEBAGO COUNTIES:

	Rates	Fringes
Ironworker.....	\$ 24.56	15.23

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 \* IRON0008-003 06/01/2004

KENOSHA, MILWAUKEE, OZAUCKEE, RACINE, WALWORTH (N.E. 2/3), WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Ironworker.....	\$ 26.37	15.23

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 \* IRON0383-001 06/01/2004

ADAMS, COLUMBIA, CRAWFORD, DANE, DODGE, FLORENCE, FOREST, GRANT, GREENE, (Excluding S.E. tip), GREEN LAKE, IOWA,



JEFFERSON, JUNEAU, LA CROSSE, LAFAYETTE, LANGLADE, MARATHON,  
MARQUETTE, MENOMINEE, MONROE, PORTAGE, RICHLAND, ROCK (Northern  
area, vicinity of Edgerton and Milton), SAUK, VERNON, WAUPACA,  
WAUSHARA, AND WOOD COUNTIES

	Rates	Fringes
Ironworker.....	\$ 26.05	13.24
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* IRON0498-005 06/01/2004		

GREEN (S.E. 1/3), ROCK (South of Edgerton and Milton), and  
WALWORTH (S.W. 2/3) COUNTIES:

	Rates	Fringes
Ironworker.....	\$ 29.45	20.425
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* IRON0512-008 05/01/2004		

BARRON, BUFFALO, CHIPPEWA, CLARK, DUNN, EAU CLAIRE, JACKSON,  
PEPIN, PIERCE, POLK, RUSK, ST CROIX, TAYLOR, AND TREMPLEAU  
COUNTIES

	Rates	Fringes
Ironworker.....	\$ 29.80	15.52
-----		
* IRON0563-004 05/01/2004		

ASHLAND, BAYFIELD, BURNETT, DOUGLAS, IRON, LINCOLN, ONEIDA,  
PRICE, SAWYER, VILAS AND WASHBURN COUNTIES

	Rates	Fringes
Ironworker.....	\$ 24.65	15.31
-----		
* LABO0113-002 06/01/2004		

MILWAUKEE AND WAUKESHA COUNTIES

	Rates	Fringes
Laborers:		
Group 1.....	\$ 21.12	10.57
Group 2.....	\$ 21.27	10.57
Group 3.....	\$ 21.47	10.57
Group 4.....	\$ 21.62	10.57
Group 5.....	\$ 21.77	10.57
Group 6.....	\$ 17.61	10.57

#### LABORERS CLASSIFICATIONS

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer;  
Demolition and Wrecking Laborer; Guard Rail, Fence, and  
Bridge Builder; Landscaper; Multiplate Culvert Assembler;  
Stone Handler; Bituminous Worker (Shoveler, Loader, and  
Utility Man); Batch Truck Dumper or Cement Handler;  
Bituminous Worker (Dumper, Ironer, Smoother, and Tamper);  
Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler  
(Pavement); Vibrator or Tamper Operator (Mechanical Hand  
Operated); Chain Saw Operator; Demolition Burning Torch  
Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter  
(Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster and Powderman

GROUP 6: Flagperson; traffic control person

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\* LABO0113-003 06/01/2004

OZAUKEE AND WASHINGTON COUNTIES

	Rates	Fringes
Laborers:		
Group 1.....	\$ 20.37	10.57
Group 2.....	\$ 20.47	10.57
Group 3.....	\$ 20.52	10.57
Group 4.....	\$ 20.72	10.57
Group 5.....	\$ 20.57	10.57
Group 6.....	\$ 17.46	10.57

LABORERS CLASSIFICATIONS

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer;  
Demolition and Wrecking Laborer; Guard Rail, Fence, and  
Bridge Builder; Landscaper; Multiplate Culvert Assembler;  
Stone Handler; Bituminous Worker (Shoveler, Loader, and  
Utility Man); Batch Truck Dumper or Cement Handler;  
Bituminous Worker (Dumper, Ironer, Smoother, and Tamper);  
Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler  
(Pavement); Vibrator or Tamper Operator (Mechanical Hand  
Operated);

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter  
(Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; powderman

GROUP 6: Flagperson and Traffic Control Person

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\* LABO0140-002 06/01/2004

ADAMS, ASHLAND, BARRON, BAYFIELD, BROWN, BUFFALO, BURNETT,  
CALUMET, CHIPPEWA, CLARK, COLUMBIA, CRAWFORD, DODGE, DOOR,  
DOUGLAS, DUNN, EAU CLAIRE, FLORENCE, FOND DU LAC, FOREST,  
GRANT, GREEN, GREEN LAKE, IRON, JACKSON, JUNEAU, IOWA,  
JEFFERSON, KEWAUNEE, LA CROSSE, LAFAYETTE, LANGLADE, LINCOLN,

MANITOWOC, MARATHON, MARINETTE, MARQUETTE, MENOMINEE, MONROE,  
 OCONTO, ONEIDA, OUTAGAMIE, PEPIN, PIERCE, POLK, PORTAGE, PRICE,  
 RICHLAND, ROCK, RUSK, SAUK, SAWYER, SHAWANO, SHEBOYGAN, ST.  
 CROIX, TAYLOR, TREMPLEAU, VERNON, VILLAS, WALWORTH, WASHBURN,  
 WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
Laborers:		
Group 1.....	\$ 20.70	9.17
Group 2.....	\$ 20.80	9.17
Group 3.....	\$ 20.85	9.17
Group 4.....	\$ 21.05	9.17
Group 5.....	\$ 20.90	9.17
Group 6.....	\$ 17.33	9.17

#### LABORERS CLASSIFICATIONS

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer;  
 Demolition and Wrecking Laborer; Guard Rail, Fence, and  
 Bridge Builder; Landscaper; Multiplate Culvert Assembler;  
 Stone Handler; Bituminous Worker (Shoveler, Loader, and  
 Utility Man); Batch Truck Dumper or Cement Handler;  
 Bituminous Worker (Dumper, Ironer, Smoother and Tamper);  
 Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler  
 (Pavement); Vibrator or Tamper Operator (Mechanical Hand  
 Operated)

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter  
 (Curb, Sidewalk and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; powderman

GROUP 6: Flagperson; Traffic Control

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 \* LABO0237-002 06/01/2004

#### KENOSHA AND RACINE COUNTIES

	Rates	Fringes
Laborers:		
Group 1.....	\$ 18.98	11.77
Group 2.....	\$ 19.13	11.77
Group 3.....	\$ 19.33	11.77
Group 4.....	\$ 19.30	11.77
Group 5.....	\$ 19.63	11.77
Group 6.....	\$ 16.12	11.77

#### LABORERS CLASSIFICATIONS:

GROUP 1: General laborer; Tree Trimmer; Conduit Layer;  
 Demolition and Wrecking Laborer; Guard Rail, Fence, and  
 Bridge Builder; Landscaper; Multiplate Culvert Assembler;  
 Stone Handler; Bituminous Worker (Shoveler, Loader, and  
 Utility Man); Batch Truck Dumper or Cement Handler;

Bituminous worker (Dumper, Ironer, Smoother, and Tamper);  
Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler  
(Pavement); Vibrator or Tamper Operator (Mechanical Hand  
Operated); Chain Saw Operator; Demolition Burning Torch  
Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter  
(Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster and Powderman

GROUP 6: Flagman; traffic control person

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\* LAB00464-003 06/01/2004

DANE COUNTY

	Rates	Fringes
Laborers:		
Group 1.....	\$ 20.98	9.17
Group 2.....	\$ 21.08	9.17
Group 3.....	\$ 21.13	9.17
Group 4.....	\$ 21.33	9.17
Group 5.....	\$ 21.18	9.17
Group 6.....	\$ 17.33	9.17

LABORERS CLASSIFICATIONS:

GROUP 1: General Laborer; Tree Trimmer; Conduit Layer;  
Demolition and Wrecking Laborer; Guard Rail, Fence, and  
Bridge Builder; Landscaper; Multiplate Culvert Assembler;  
Stone Handler; Bituminous Worker (Shoveler, Loader, and  
Utility Man); Batch Truck Dumper or Cement Handler;  
Bituminous Worker (Dumper, Ironer, Smoother, and Tamper);  
Concrete Handler

GROUP 2: Air Tool Operator; Joint Sawyer and Filler  
(Pavement); Vibrator or Tamper Operator (Mechanical Hand  
Operated); Chain Saw Operator; Demolition Burning Torch  
Laborer

GROUP 3: Bituminous Worker (Raker and Luteman); Formsetter  
(Curb, Sidewalk, and Pavement); Strike Off Man

GROUP 4: Line and Grade Specialist

GROUP 5: Blaster; Powderman

GROUP 6: Flagperson and Traffic Control Person

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PAIN0106-008 05/01/2001

ASHLAND, BAYFIELD, BURNETT, AND DOUGLAS COUNTIES

Rates	Fringes
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Painters:

New:

Brush, Roller.....	\$ 22.73	7.73
Spray, Sandblast, Steel....	\$ 23.33	7.73

Repaint:

Brush, Roller.....	\$ 21.23	7.73
Spray, Sandblast, Steel....	\$ 21.83	7.73

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PAIN0108-002 06/01/2002

RACINE COUNTY

	Rates	Fringes
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Painters:

Brush, Roller.....	\$ 22.05	8.25
Spray & Sandblast.....	\$ 23.05	8.25

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PAIN0259-002 06/01/2004

BARRON, CHIPPEWA, DUNN, EAU CLAIRE, PEPIN, PIERCE, POLK, RUSK,  
SAWYER, ST. CROIX, AND WASHBURN COUNTIES

	Rates	Fringes
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Painters:.....	\$ 21.76	9.20
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PAIN0259-004 06/01/2004

BUFFALO, CRAWFORD, JACKSON, LA CROSSE, MONROE, TREMPLEAU, AND  
VERNON COUNTIES

	Rates	Fringes
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Painter.....	\$ 16.58	6.95
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\* PAIN0781-002 06/01/2004

JEFFERSON, MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
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Painters:

Bridge.....	\$ 24.64	10.97
Brush.....	\$ 24.29	10.97
Spray & Sandblast.....	\$ 25.04	10.97

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\* PAIN0802-002 06/01/2004

COLUMBIA, DANE, DODGE, GRANT, GREEN, IOWA, LAFAYETTE, RICHLAND,  
ROCK, AND SAUK COUNTIES

	Rates	Fringes
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Painters:

Brush.....	\$ 22.65	9.00
Structural Steel, Spray.....	\$ 23.65	9.00

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\* PAIN0802-003 06/01/2004

ADAMS, BROWN, CALUMET, CLARK, DOOR, FOND DU LAC, FOREST, GREEN  
LAKE, IRON, JUNEAU, KEWAUNEE, LANGLADE, MANITOWOC, MARATHON,  
MARINETTE, MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE,  
PORTAGE, PRICE, SHAWANO, SHEBOYGAN, TAYLOR, VILAS, WAUSHARA,  
WAUPACA, WINNEBAGO, AND WOOD COUNTIES

	Rates	Fringes
Painters:.....	\$ 19.32	6.02

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\* PAIN0802-006 06/01/2004

ADAMS, CLARK, FOREST, IRON, JUNEAU, LANGLADE, LINCOLN,  
MARATHON, MENOMINEE, ONEIDA, PORTAGE, PRICE, TAYLOR, WOOD, AND  
VILAS COUNTIES

	Rates	Fringes
Painters:.....	\$ 19.32	6.02

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\* PAIN0934-001 06/01/2002

KENOSHA AND WALWORTH COUNTIES

	Rates	Fringes
Painters:		
Brush.....	\$ 22.98	7.25
Spray.....	\$ 23.98	7.25
Structural Steel.....	\$ 23.13	7.25

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\* PAIN1011-002 06/01/2001

FLORENCE COUNTY

	Rates	Fringes
Painters:.....	\$ 19.40	3.95

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\* PLAS0599-010 06/01/2004

	Rates	Fringes
Cement Mason		
Area 1.....	\$ 25.25	10.95
Area 2.....	\$ 24.20	10.45
Area 3.....	\$ 23.05	11.95
Area 4.....	\$ 25.47	9.68
Area 5.....	\$ 24.25	10.90
Area 6.....	\$ 22.10	13.05

AREA DESCRIPTIONS

AREA 1: BAYFIELD, DOUGLAS, PRICE, SAYER, AND WASHBURN  
COUNTIES

AREA 2: ADAMS, ASHLAND, BARRON, BROWN, BURNETT, CALUMET,  
CHIPPEWA, CLARK, COLUMBIA, DODGE, DOOR, DUNN, FLORENCE,  
FOND DU LAC, FOREST, GREEN LAKE, IRON, JEFFERSON, KEWAUNEE,

LANGLADE, LINCOLN, MANITOWOC, MARATHON, MARINETTE,  
MARQUETTE, MENOMINEE, OCONTO, ONEIDA, OUTAGAMIE, POLK,  
PORTAGE, RUSK, ST CROIX, SAUK, SHAWANO, SHEBOYGAN, TAYLOR,  
VILAS, WALWORTH, WAUPACA, WAUSHARA, WINNEBAGO, AND WOOD  
COUNTIES

AREA 3: BUFFALO, CRAWFORD, EAU CLAIRE, JACKSON, JUNEAU, LA  
CROSSE MONROE, PEPIN, PIERCE, RICHLAND, TREMPLEAU, AND  
VERNON COUNTIES

AREA 4: MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

AREA 5: DANE, GRANT, GREEN, IOWA, LAFAYETTE, AND ROCK  
COUNTIES

AREA 6: KENOSHA AND RACINE COUNTIES

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\* PLUM0011-003 05/01/2004

ASHLAND, BAYFIELD, BURNETT, DOUGLAS, IRON, SAWYER, AND WASHBURN  
COUNTIES

	Rates	Fringes
Plumber.....	\$ 29.61	11.14

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\* PLUM0075-002 06/01/2004

MILWAUKEE, OZAUKEE, WASHINGTON, AND WAUKESHA COUNTIES

	Rates	Fringes
Plumber.....	\$ 29.80	9.99

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\* PLUM0075-004 06/01/2004

DODGE (Watertown), GREEN, JEFFERSON, LAFAYETTE, AND ROCK  
COUNTIES

	Rates	Fringes
Plumber/Pipefitter.....	\$ 30.05	9.99

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\* PLUM0075-009 06/01/2002

COLUMBIA, DANE, IOWA, MARQUETTE, RICHLAND AND SAUK COUNTIES

	Rates	Fringes
Plumber.....	\$ 30.25	9.29

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\* PLUM0118-002 06/01/2003

KENOSHA, RACINE, AND WALWORTH COUNTIES

	Rates	Fringes
Plumber and Steamfitter.....	\$ 27.66	12.09

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\* PLUM0400-003 06/01/2004

ADAMS,BROWN, CALUMET, DODGE (except Watertown), DOOR, FOND DU LAC, GREEN LAKE,KEWAUNEE, MANITOWOC, MARINETTE (except Niagara), MENOMINEE, OCONTO, OUTAGAMIE, SHAWANO, SHEBOYGAN, WAUPACA, WAUSHARA, AND WINNEBAGO COUNTIES

	Rates	Fringes
Plumber/Pipefitter.....	\$ 27.72	10.52

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\* PLUM0434-002 06/01/2002

BARON, BUFFALO, CHIPPEWA, CLARK, CRAWFORD, DUNN, EAU CLAIRE, FLORENCE, FOREST, GRANT, JACKSON, JUNEAU, LA CROSSE, LANGLADE, LINCOLN, MARATHON, MONROE, ONEIDA, PEPIN, PIERCE, POLK, PORTAGE, PRICE, RUSK, ST. CROIX, TAYLOR, TREMPPEALEAU, VERNON, VILAS, AND WOOD COUNTIES

	Rates	Fringes
Pipefitter.....	\$ 25.15	9.72

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\* PLUM0506-007 06/01/2003

MARINETTE COUNTY (Niagara only)

	Rates	Fringes
Plumber/Pipefitter		
(1) Jobs where plumbing		
bid is \$50,000 or less.....	\$ 20.56	12.05
(2) All other work.....	\$ 25.71	12.05

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\* TEAM0039-002 05/01/2004

	Rates	Fringes
Truck drivers:		
1 & 2 Axle Trucks.....	\$ 19.45	12.01
2 Axle Trucks.....	\$ 19.17	10.69
3 or more axles; Euclids		
or Dumptor, Articulated		
Truck, Mechanic.....	\$ 19.60	12.01

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SELF-PROPELLED HOPPER DREDGE:

Drag Tender	\$ 8.78	\$4.23+A
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FOOTNOTE:

A. Paid Holidays: New years Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Paul Hall's Birthday (August 20), Veteran,s Day, Thanksgiving Day, and Christmas Day

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WELL DRILLER	\$16.52	\$3.70
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WELDERS - Receive rate prescribed for craft performing



operation to which welding is incidental.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

In the listing above, the "SU" designation means that rates listed under the identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

#### WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations

Wage and Hour Division

U.S. Department of Labor

200 Constitution Avenue, N.W.

Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator

U.S. Department of Labor

200 Constitution Avenue, N.W.

Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board

U.S. Department of Labor

200 Constitution Avenue, N.W.

Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

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## SECTION 02139

## SITE PREPARATION

## PART 1 GENERAL

## 1.1 DESCRIPTION OF WORK

The work required under this Section includes furnishing all materials and equipment and performing operations such as, but not limited to, excavating and other areas requiring removal of materials to accommodate required construction, and haul road as shown on the contract drawings; and properly disposing of excess and waste materials. All work shall be conducted in a manner to prevent damage to the structures which are to remain and to maintain or improve the aesthetics and ecology of the site. (See SECTION, 01130, "ENVIRONMENTAL PROTECTION.") All work and materials shall be in accordance with the requirements specified herein and shown on the contract drawings.

## 1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-01 Preconstruction Submittals

## Construction Equipment.

Prior to starting work, a list of all equipment, tools and machines, including their sizes, capacities and operating speeds, to be used in the performance of the work, shall be submitted. All equipment shall be maintained in satisfactory working condition at all times.

## Work Plan; G-AOF.

At least ten (10) calendar days prior to proceeding with the work at the site, submit a work plan for the work required under this Section. The plan shall include a description of the means, methods, procedures and sequence in which the required work will be performed. The protective measures which will be taken to prevent damaging, disturbing, undermining or causing cave-ins at the existing piers, docks and revetments shall be described. The proposed locations of temporary stockpiles of excavated material shall be described in detail. The locations of staging areas, equipment storage, docking of floating plant, mooring areas, vehicle parking, office trailers and other Contractor facilities shall be described and shown.

## SD-11 Closeout Submittals

## Check Survey Records

A copy of the records of each check survey shall be provided on the next work day following the survey.

### 1.3 PROJECT/SITE CONDITIONS

#### 1.3.1 Satisfactory Materials

Satisfactory materials shall comprise any materials classified by ASTM D 2487 as GW, GP, GM, GP-GM, GW-GM, GC, GP-GC, GM-GC, SW, SP.

#### 1.3.2 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory which contains root and other organic matter or frozen material. The Contracting Officer shall be notified of any contaminated materials.

#### 1.3.3 Cohesionless and Cohesive Materials

Cohesionless materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic. Testing required for classifying materials shall be in accordance with ASTM D 4318, ASTM C 136, ASTM D 422, and ASTM D 1140.

#### 1.3.4 Degree of Compaction

Degree of compaction required, except as noted in the second sentence, is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557 abbreviated as a percent of laboratory maximum density. Since ASTM D 1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 3/4 inch sieve, the degree of compaction for material having more than 30 percent by weight of their particles retained on the 3/4 inch sieve shall be expressed as a percentage of the maximum density in accordance with AASHTO T 180 Method D and corrected with AASHTO T 224. To maintain the same percentage of coarse material, the "remove and replace" procedure as described in the NOTE 8 in Paragraph 7.2 of AASHTO T 180 shall be used.

### PART 2 PRODUCTS (NOT APPLICABLE)

### PART 3 EXECUTION

#### 3.1 SLOPE PREPARATION

The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Grading shall be in conformity with the typical sections shown. Suitable excavated materials shall be reused as backfill and paid for under site preparation. It is anticipated that all excavated materials is suitable for backfilling. During construction, excavation and fill shall be performed in a manner and sequence that will provide proper drainage and sediment control at all times. Prepare slopes to the lines and grades shown on the drawings. Conduct operations with care to prevent damage or disturbance to existing structures, utilities, roadways, and fences which are to remain. Existing property and improvements shall not be undermined. Slope preparation in advance of 100 feet of completed armor stone construction shall be at the Contractor's risk.

The alignment of the the required top of slope is shown on the drawings. Immediately prior to commencement of work at the site, under the direction and observation of the Contracting Officer's Representative at the site, the Contractor shall place offset stakes at fifty (50) foot intervals to establish the top of the slope alignment. Earthwork is required landward of the top of slope to create a smooth transition to the existing ground surface and to provide proper drainage.

### 3.2 SEEDING

Contractor shall seed all fill and excavated areas in accordance with the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, dated 1996, Section 630 SEEDING.

### 3.3 TOPSOIL

Contractor shall provide and place top soil as shown on the contract drawings in accordance with the State of Wisconsin, Department of Transportation, Standard Specifications for Highway and Structure Construction, dated 1996, Section 625 TOPSOIL AND SALVAGED TOPSOIL.

### 3.4 FILL AND BACKFILL

Fill and backfill adjacent to any and all types of structures shall be placed and compacted to at least 80 percent laboratory maximum density for cohesive materials or 85 percent laboratory maximum density for cohesionless materials to prevent wedging action or eccentric loading upon or against the structure. Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment.

### 3.5 BROKEN CONCRETE SLABS

Concrete slabs as shown on the drawings (approximately 1170 Square Yards) may be broken to maximum dimension of 12-inches or less and used as fill. Concrete material used as fill material shall be free of rebar. If concrete material is determined by the Contracting Officer Representative to be of substandard quality for fill use, then contractor shall dispose of as stated in section "DISPOSAL".

### 3.6 REMOVAL OF OBSTRUCTIONS

The existing items which are to be removed to allow for the required construction work shall be as indicated on the drawings and specified herein. All of the area within the limits of the required work, as shown on the drawings, shall be cleared of vegetation, scrap, organic debris, and other unsatisfactory materials. The waste materials obtained from these operations shall be disposed of as specified in Paragraph "DISPOSAL." Replacement of signs and mounting posts shall be as directed by Government's on-site representative.

### 3.7 STOCKPILING

As material is excavated, it may be temporarily stockpiled or placed directly in the required work as backfill. Surface stockpiles shall be maintained in neat and well drained condition. Underwater stockpiling is not allowed. At the completion of the work all temporarily stockpiled materials shall have been removed from their temporary locations and placed

in the work in the required location or at a location as directed by the Government's on-site representative.

### 3.8 DISPOSAL

All waste, excess and unsatisfactory materials resulting from work required under this Section shall be removed from the site unless otherwise specified and directed and upon removal shall become the property of the Contractor. All disposal shall conform to the requirements of SECTION 01430 "ENVIRONMENTAL PROTECTION", including any applicable local requirements.

### 3.9 QUALITY CONTROL

The Contractor shall establish and maintain a quality control system for all operations performed under this Section to assure compliance with contract requirements and maintain records of its quality control for all operations performed, including, but not limited to, the following:

- a. Removal work.
- b. Disposal.
- c. Observance of safety regulations.

#### 3.9.1 Check Surveys

Surveys made by the Contractor will be required on the placement of excavated material for determining that the work is acceptably performed. The Contractor shall make checks as the work progresses to verify that the excavation and the placed material will allow the structure to be constructed within the lines established for completed work. At least one (1) check survey as specified below shall be made by the Contractor for each fifty (50) foot section as soon as practicable after completion. Following this work, the cross section of each step of the work shall be approved by the Government's On-site Representative before proceeding with the next step of the work. Approval of cross sections based on check surveys shall not constitute final acceptance of the work. Cross sections shall be taken by the Contractor on lines fifty (50) feet apart, measured along the structure reference lines, with readings at five (5) foot intervals and at breaks along the lines out to a minimum of one-hundred (100) feet from reference line. Additional elevations and soundings shall be taken as the Government's On-site Representative may deem necessary or advisable. The surveys shall be conducted in the presence of an authorized representative of the Government, unless waived by the Contracting Officer.

##### 3.9.1.1 Above Water

Elevation of material above the water surface shall be determined by the use of a leveling instrument and a rod having a base twelve (12) inches in diameter. Other means, if approved by the Contracting Officer, may also be used.

##### 3.9.1.2 Below Water

For portions of the work that are under water, sounding surveys shall be performed either by means of a sounding pole or a sounding basket weighing about 8-1/2 pounds, each of which has a base measuring twelve (12) inches in diameter.

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## SECTION 02370A

## SOIL SURFACE EROSION CONTROL

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AGRICULTURAL MARKETING SERVICE (AMS)

AMS Seed Act (1995) Federal Seed Act Regulations Part 201

## 1.1.1 DESCRIPTION OF WORK

The work shall consist of furnishing and installing soil surface erosion control materials, including fine grading, blanketing, stapling, mulching and miscellaneous related work, within project limits and in areas outside the project limits where the soil surface is disturbed from work under this contract at the designated locations. This work shall include all necessary materials, labor, supervision and equipment for installation of a complete system.

## 1.1.2 MEASUREMENT AND PAYMENT

## 1.1.2.1 Erosion Control Blankets

The erosion control blankets shall be measured by the square yard of surface area covered. No measurement for payment shall be made for fine grading, trenching or other miscellaneous materials necessary for placement of the erosion control blankets.

## 1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-02 Shop Drawings

Layout; G-AOF

Obstructions Below Ground; G-AOF

Provide scale drawings showing locations of any obstructions below ground within the project area.

#### Erosion Control; G-AOF

Scale drawings defining areas to receive recommended materials as required by federal, state or local regulations.

#### Seed Establishment Period; G-AOF

Calendar time period for the seed establishment period. When there is more than one seed establishment period, the boundaries of the seeded area covered for each period shall be described.

#### Maintenance Record;

Maintenance record of work performed, of measurements and findings for product failure, recommendations for repair, and products replaced.

#### Equipment;

A listing of equipment to be used for the application of erosion control materials.

#### Finished Grade;

Condition of finish grade status prior to installation; location of underground utilities and facilities.

### SD-06 Test Reports

#### Erosion Control Blankets;

Certified reports of inspections and laboratory tests, prepared by an independent testing agency, including analysis and interpretation of test results. Each report shall be properly identified. Test methods used and compliance with recognized test standards shall be described.

#### Construction Work Sequence Schedule; GA-AOF

Construction sequence schedule showing the start and finish dates of definable features of work..

#### Installer's Qualification;

The installer's company name and address; training and experience and or certification.

### SD-10 Operation and Maintenance Data

#### Maintenance Instructions;

Maintenance Instruction for year-round care of installed material.

## 1.2 DELIVERY, INSPECTION, STORAGE, AND HANDLING

Materials shall be stored in designated areas and as recommended by the manufacturer protected from the elements, direct exposure, and damage. Containers shall not be dropped from trucks. Material shall be free of

defects that would void required performance or warranty.

- a. Erosion control blankets shall be furnished in rolls with suitable wrapping to protect against moisture and extended ultraviolet exposure prior to placement. Erosion control blanket rolls shall be labeled to provide identification sufficient for inventory and quality control purposes.
- b. Seed shall be inspected upon arrival at the jobsite for conformity to species and quality. Seed that is wet, moldy, or bears a test date five months or older, shall be rejected.

### 1.3 SUBSTITUTIONS

Substitutions will not be allowed without written request and approval from the Contracting Officer.

### 1.4 INSTALLER'S QUALIFICATION

The installer shall be certified by the manufacturer for training and experience installing the material.

### 1.5 TIME LIMITATIONS

Backfilling the openings in synthetic grid systems and articulating cellular concrete block systems shall be completed a maximum 7 days after placement to protect the material from ultraviolet radiation.

### 1.6 WARRANTY

Erosion control material shall have a warranty for use and durable condition for project specific installations. Temporary erosion control materials shall carry a minimum eighteen month warranty. Permanent erosion control materials shall carry a minimum three year warranty.

## PART 2 PRODUCTS

### 2.1 Erosion Control Blankets

#### 2.1.1 Erosion Control Blankets Type VII

Erosion control blanket shall be a machine-produced 100 percent biodegradable mat with an herbaceous straw fiber matrix. The blanket shall be of consistent thickness with the straw evenly distributed over the entire area of the mat. The blanket shall be covered on the top and bottom sides with 100 percent biodegradable woven natural fiber netting. The netting shall consist of machine directional strands formed from two intertwined yarns with cross directional strands interwoven through the twisted machine strands (commonly referred to as a Leno weave) to form an approximate 1/2 by 1/2 inch mesh. The blanket shall be sewn together with biodegradable thread on 1.5 inch centers. The blanket shall have the following properties:

#### Material Content

Straw	100 percent straw fiber with approximately .5 lb/yd <sup>2</sup> weight.
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Netting	Top and bottom sides, Leno woven 100% biodegradable
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**Material Content**

natural organic fiber with approximately  
9.3 lb/1,000ft<sup>2</sup> weight.

Thread                      Biodegradable

Note: Photodegradable life a minimum of 18 months with a minimum 90 percent light penetration. Apply to slopes up to a maximum 1.5:1 gradient.

**2.1.1.2 Seed****2.1.1.2.1 Seed Classification**

State-approved seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS Seed Act and applicable state seed laws.

**2.1.1.2.2 Permanent Seed Species and Mixtures**

Permanent seed species and mixtures shall meet requirement for Wisconsin Department of Transportation (WDOT) Seed Mixture No. 30.

Mixture Percent by Weight	Botanical Name	Common Name
10%	<i>Poa pratensis</i>	Kentucky Bluegrass
30%	<i>Festuca rubra</i>	Red Fescue
25%	<i>Festuca ovina</i>	Hard Fescue
10%	<i>Puccinella distans</i>	Salt Grass
15%	<i>Lolium perenne</i>	Improved Fine Perennial Ryegrass
10%	<i>Lotus corniculatus</i>	Birdsfoot Trefoil

**2.1.1.2.3 Quality**

Weed seed shall be a maximum 1 percent by weight of the total mixture.

**2.1.1.3 Staking**

Stakes shall be 100 percent biodegradable manufactured from recycled plastic or wood and shall be designed to safely and effectively secure erosion control blankets for temporary or permanent applications. The biodegradable stake shall be fully degradable by biological activity within a reasonable time frame. The bio-plastic resin used in production of the biodegradable stake shall consist of polylactide, a natural, completely biodegradable substance derived from renewable agricultural resources. The biodegradable stake must exhibit ample rigidity to enable being driven into hard ground, with sufficient flexibility to resist shattering. The biodegradable stake shall have serrations on the leg to increase resistance to pull-out from the soil. The biodegradable stake shall have dimensions recommended by the erosion control blanket manufacturer.

#### 2.1.4 Staples

Staples shall be as recommended by the manufacturer.

#### 2.1.5 WATER

Unless otherwise directed, water shall be the responsibility of the Contractor. Water shall be potable or supplied by an existing irrigation system.

### PART 3 EXECUTION

#### 3.1 CONDITIONS

The Contractor shall submit a construction work sequence schedule, with the State of Wisconsin approved erosion control plan a minimum of 30 days prior to start of construction. The work schedule shall coordinate the timing of land disturbing activities with the provision of erosion control measures. Erosion control operations shall be performed under favorable weather conditions; when excessive moisture, frozen ground or other unsatisfactory conditions prevail, the work shall be stopped as directed. When special conditions warrant a variance to earthwork operations, a revised construction schedule shall be submitted for approval. Erosion control materials shall not be applied in adverse weather conditions which could affect their performance.

##### 3.1.1 Finished Grades

The Contractor shall verify that finished grades are as indicated on the drawings. The location of underground utilities and facilities in the area of the work shall be verified and marked. Damage to underground utilities and facilities shall be repaired at the Contractor's expense.

##### 3.1.2 Placement of Erosion Control Blankets

Before placing the erosion control blankets, ensure the subgrade has been graded smooth; has no depressed, void areas; is free from obstructions, such as tree roots, projecting stones or other foreign matter. Vehicles shall not be permitted directly on the blankets.

##### 3.1.3 SITE PREPARATION

###### 3.1.3.1 Layout

Erosion control material locations may be adjusted to meet field conditions. When soil tests result in unacceptable particle sizes, a shop drawing shall be submitted indicating the corrective measures.

###### 3.1.3.2 Protecting Existing Vegetation

When there are established lawns in the work area, the turf shall be covered and/or protected or replaced after construction operations. Existing trees, shrubs, and plant beds that are to be preserved shall be barricaded along the dripline. Damage to existing trees shall be mitigated by the Contractor at no additional cost to the Government. Damage shall be assessed by a state certified arborist or other approved professional using the National Arborist Association's tree valuation guideline.

### 3.1.3.3 Obstructions Below Ground

When obstructions below ground affect the work, shop drawings showing proposed adjustments to placement of erosion control material shall be submitted for approval.

### 3.1.4 INSTALLATION

#### 3.1.4.1 Erosion Control Blankets

a. Erosion control blankets shall be installed as indicated and in accordance with manufacturer's recommendations. The extent of erosion control blankets shall be as shown on drawings.

b. Erosion control blankets shall be oriented in vertical strips and anchored with staples, as recommended by the manufacturer. Adjacent strips shall be abutted to allow for installation of a common row of staples. Horizontal joints between erosion control blankets shall be overlapped sufficiently to accommodate a common row of staples with the uphill end on top.

c. A trench shall be located at the uphill termination. The erosion control blanket shall be stapled to the bottom of the trench. Backfill and compact the trench as required.

d. Where terminating in a channel containing an installed blanket, the erosion control blanket shall overlap installed blanket sufficiently to accommodate a common row of staples.

#### 3.1.5 CLEAN-UP

Excess material, debris, and waste materials shall be disposed offsite at an approved landfill or recycling center. Adjacent paved areas shall be cleared. Immediately upon completion of the installation in an area, the area shall be protected against traffic or other use by erecting barricades and providing signage as required, or as directed.

#### 3.1.6 SEED ESTABLISHMENT PERIOD

##### 3.1.6.1 Commencement

The seed establishment period to obtain a healthy stand of grass plants shall begin on the first day of work under this contract and shall end 3 months after the last day of the seeding operation. Written calendar time period shall be furnished for the seed establishment period. When there is more than 1 seed establishment period, the boundaries of the seeded area covered for each period shall be described. The seed establishment period shall be modified for inclement weather, shut down periods, or for separate completion dates of areas.

##### 3.1.6.2 Satisfactory Stand of Grass Plants

Grass plants shall be evaluated for species and health when the grass plants are a minimum 1 inch high.

##### 3.1.6.3 Field Area

A satisfactory stand of grass plants from the seeding operation for a field area shall be a minimum 10 grass plants per square foot. The total bare



spots shall not exceed 2 percent of the total seeded area.

#### 3.1.6.4 Maintenance During Establishment Period

Maintenance of the seeded areas shall include eradicating weeds, insects and diseases; protecting embankments and ditches from surface erosion; maintaining erosion control materials and mulch; protecting installed areas from traffic; and watering.

#### 3.1.6.5 WATERING SEED

Water shall be applied to supplement rainfall at a sufficient rate to ensure moist soil conditions to a minimum 1 inch depth. Run-off and puddling shall be prevented. Watering trucks shall not be driven over turf areas, unless otherwise directed. Watering of other adjacent areas or plant material shall be prevented.

#### 3.2 MAINTENANCE RECORD

A record shall be furnished describing the maintenance work performed, record of measurements and findings for product failure, recommendations for repair, and products replaced.

#### 3.3 Maintenance

Maintenance shall include eradicating weeds; protecting embankments and ditches from surface erosion; maintaining the performance of the erosion control materials and mulch; protecting installed areas from traffic.

#### 3.4 Maintenance Instructions

Written instructions containing drawings and other necessary information shall be furnished, describing the care of the installed material; including, when and where maintenance should occur, and the procedures for material replacement.

#### 3.5 Patching and Replacement

Unless otherwise directed, material shall be placed, seamed or patched as recommended by the manufacturer. Material not meeting the required performance as a result of placement, seaming or patching shall be removed from the site. The Contractor shall replace the unacceptable material at no additional cost to the Government.

-- End of Document --

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## SECTION 02373

## GEOTEXTILE

## PART 1 GENERAL

## 1.1 DESCRIPTION OF WORK

The work required under this Section includes furnishing all materials and equipment and performing operations such as, but not limited to, placement of geotextile fabric above backfill area beyond the reinforced concrete cap, prior to placement of required splash stone.

## 1.2 REFERENCES

The publications listed below form a part of the specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4354	(1999) Sampling of Geosynthetics for Testing
ASTM D 4355	(1999) Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
ASTM D 4491	(1999a) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(1991; R 1996) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 1997) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(1999a) Determining Apparent Opening Size of a Geotextile
ASTM D 4759	(1988; R 1996) Determining the Specification Conformance of Geosynthetics
ASTM D 4833	(2000) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 4873	(2001) Identification, Storage, and Handling of Geosynthetic Rolls and Samples

## 1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be

submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Thread; G-AOF

A minimum of 7 days prior to scheduled use, proposed thread type for sewn seams along with data sheets showing the physical properties of the thread.

Manufacturing Quality Control Manual Sampling and Testing; G-AOF

A minimum of 7 days prior to scheduled use, manufacturer's quality control manual.

SD-04 Samples

Quality Assurance Samples and Tests; G-AOF

Samples for quality assurance testing; 14 days shall be allotted in the schedule to allow for testing.

SD-07 Certificates

Geotextile; G-AOF

A minimum of 7 days prior to scheduled use, manufacturer's certificate of compliance stating that the geotextile meets the requirements of this section. For needle punched geotextiles, the manufacturer shall also certify that the geotextile has been continuously inspected using permanent on-line full-width metal detectors and does not contain any needles which could damage other geosynthetic layers. The certificate of compliance shall be attested to by a person having legal authority to bind the geotextile manufacturer.

1.4 DELIVERY, STORAGE AND HANDLING

Delivery, storage, and handling of geotextile shall be in accordance with ASTM D 4873.

1.4.1 Delivery

The Contracting Officer shall be notified a minimum of 24 hours prior to delivery and unloading of geotextile rolls. Rolls shall be packaged in an opaque, waterproof, protective plastic wrapping. The plastic wrapping shall not be removed until deployment. If quality assurance samples are collected, rolls shall be immediately rewrapped with the plastic wrapping. Geotextile or plastic wrapping damaged during storage or handling shall be repaired or replaced, as directed. Each roll shall be labeled with the manufacturer's name, geotextile type, roll number, roll dimensions (length, width, gross weight), and date manufactured.

1.4.2 Storage

Rolls of geotextile shall be protected from construction equipment, chemicals, sparks and flames, temperatures in excess of 160 degrees F, or any other environmental condition that may damage the physical properties of the geotextile. To protect geotextile from becoming saturated, rolls

shall either be elevated off the ground or placed on a sacrificial sheet of plastic in an area where water will not accumulate.

#### 1.4.3 Handling

Geotextile rolls shall be handled and unloaded with load carrying straps, a fork lift with a stinger bar, or an axial bar assembly. Rolls shall not be dragged along the ground, lifted by one end, or dropped to the ground.

### PART 2 PRODUCTS

#### 2.1 RAW MATERIALS

##### 2.1.1 Geotextile

Geotextile shall be a woven pervious sheet of polymeric material and shall consist of long-chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The use of woven slit film geotextiles (i.e. geotextiles made from yarns of a flat, tape-like character) will not be allowed. Stabilizers and/or inhibitors shall be added to the base polymer, as needed, to make the filaments resistant to deterioration by ultraviolet light, oxidation, and heat exposure. Regrind material, which consists of edge trimmings and other scraps that have never reached the consumer, may be used to produce the geotextile. Post-consumer recycled material may also be used. Geotextile shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including the edges. Geotextiles shall meet the requirements specified in Table 1. Where applicable, Table 1 property values represent minimum average roll values (MARV) in the weakest principal direction. Values for AOS represent maximum average roll values.

TABLE 1  
MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

PROPERTY	UNITS	ACCEPTABLE VALUES	TEST METHOD
GRAB STRENGTH	LBS	105	ASTM D 4632
SEAM STRENGTH	LBS	55	ASTM D 4632
PUNCTURE	LBS	70	ASTM D 4833
TRAPEZOID TEAR	LBS	35	ASTM D 4533
APPARENT OPENING SIZE	U.S. SIEVE	70	ASTM D 4751
PERMITTIVITY	SEC -1	0.1	ASTM D 4491
ULTRAVIOLET DEGRADATION	PERCENT	70 AT 500 HRS	ASTM D 4355

##### 2.1.2 Thread

Sewn seams shall be constructed with high-strength polyester, nylon, or other approved thread type. Thread shall have ultraviolet light stability equivalent to the geotextile and the color shall contrast with the geotextile.

## 2.2 MANUFACTURING QUALITY CONTROL SAMPLING AND TESTING

The Manufacturer shall be responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. Documentation describing the quality control program shall be made available upon request. Manufacturing quality control sampling and testing shall be performed in accordance with the manufacturer's approved quality control manual. As a minimum, geotextiles shall be randomly sampled for testing in accordance with ASTM D 4354, Procedure A. Acceptance of geotextile shall be in accordance with ASTM D 4759. Tests not meeting the specified requirements shall result in the rejection of applicable rolls.

## PART 3 EXECUTION

### 3.1 QUALITY ASSURANCE SAMPLES AND TESTS

#### 3.1.1 Quality Assurance Samples

The Contractor shall provide assistance to the Contracting Officer in the collection of quality assurance samples. Samples shall be collected upon delivery to the site for quality assurance testing at the request of the Contracting Officer. Samples shall be identified with a waterproof marker by manufacturer's name, product identification, lot number, roll number, and machine direction. The date and a unique sample number shall also be noted on the sample. The outer layer of the geotextile roll shall be discarded prior to sampling a roll. Samples shall then be collected by cutting the full-width of the geotextile sheet a minimum of 3 feet long in the machine direction. Rolls which are sampled shall be immediately resealed in their protective covering.

#### 3.1.2 Quality Assurance Tests

The Contractor shall provide quality assurance samples to an Independent Laboratory. Samples will be tested to verify that geotextile meets the requirements specified in Table 1. Test method ASTM D 4355 shall not be performed on the collected samples. Geotextile product acceptance shall be based on ASTM D 4759. Tests not meeting the specified requirements shall result in the rejection of applicable rolls.

### 3.2 INSTALLATION

#### 3.2.1 Subgrade Preparation

The surface underlying the geotextile shall be smooth and free of ruts or protrusions which could damage the geotextile. Subgrade materials and compaction requirements shall be in accordance with Section 02139, "SITE PREPARATION".

#### 3.2.2 Placement

The Contractor shall notify the Contracting Officer a minimum of 24 hours prior to installation of geotextile. Geotextile rolls which are damaged or contain imperfections shall be repaired or replaced as directed. The geotextile shall be laid flat and smooth so that it is in direct contact with the subgrade. The geotextile shall also be free of tensile stresses, folds, and wrinkles. On slopes steeper than 10 horizontal on 1 vertical, the geotextile shall be laid with the machine direction of the fabric

parallel to the slope direction.

### 3.3 SEAMS

#### 3.3.1 Overlap Seams

Geotextile panels shall be continuously overlapped a minimum of 12 inches at all longitudinal and transverse joints. Where seams must be oriented across the slope, the upper panel shall be lapped over the lower panel. If approved, sewn seams may be used instead of overlapped seams.

#### 3.3.2 Sewn Seams

Factory and field seams shall be continuously sewn on all slopes steeper than 1 vertical on 4. The stitch type used shall be a 401 locking chain stitch or as recommended by the manufacturer. Quality Assurance seam samples shall be provided to the Government at the request of the Contracting Officer. Seam strength shall meet the minimum requirements specified in Table 1. The thread at the end of each seam run shall be tied off to prevent unraveling. Skipped stitches or discontinuities shall be sewn with an extra line of stitching with a minimum of 18 inches of overlap.

### 3.4 PROTECTION

The geotextile shall be protected during installation from clogging, tears, and other damage. Damaged geotextile shall be repaired or replaced as directed. Adequate ballast (e.g. sand bags) shall be used to prevent uplift by wind. The geotextile shall not be left uncovered for more than 14 days after installation.

### 3.5 REPAIRS

Torn or damaged geotextile shall be repaired. Clogged areas of geotextile shall be removed. Repairs shall be performed by placing a patch of the same type of geotextile over the damaged area. The patch shall extend a minimum of 12 inches beyond the edge of the damaged area. Patches shall be continuously fastened using approved methods. The machine direction of the patch shall be aligned with the machine direction of the geotextile being repaired. Geotextile rolls which cannot be repaired shall be removed and replaced. Repairs shall be performed at no additional cost to the Government.

### 3.6 PENETRATIONS

Engineered penetrations of the geotextile shall be constructed by methods recommended by the geotextile manufacturer.

### 3.7 COVERING

Geotextile shall not be covered prior to inspection and approval by the Contracting Officer. Cover shall be placed in a manner that prevents soil from entering the geotextile overlap zone, prevents tensile stress from being mobilized in the geotextile, and prevents wrinkles from folding over onto themselves. On side slopes, soil backfill shall be placed from the bottom of the slope upward. Splash stone shall not be dropped onto the geotextile from a height greater than 3 feet. No equipment shall be operated directly on top of the geotextile without approval of the Contracting Officer. Equipment with ground pressures less than 7 psi shall be used to place the first lift over the geotextile. A minimum of 12 inches

of soil shall be maintained between full-scale construction equipment and the geotextile. Cover soil material type, compaction, and testing requirements are described in Section 02486A, "STONE CONSTRUCTION". Equipment placing cover soil shall not stop abruptly, make sharp turns, spin their wheels, or travel at speeds exceeding 5 mph.

-- End of Section --



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## SECTION 02486

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## SECTION 02486

## STONE CONSTRUCTION

## PART 1 GENERAL

## 1.1 MEASUREMENT

New materials will be measured for payment by the ton (2,000 pounds) of material acceptably placed in the work as determined by carrier displacement or certified scale weight tickets, as approved by the Contracting Officer. Material placed beyond the tolerance limits will not be paid for. The method of determining the quantity of material placed beyond tolerance limits will be made in accordance with Subparagraph, "Determination of Excess Stone." Any material wasted or used by the Contractor for other purposes and any material not placed in the required work in accordance with the requirements of the specifications and drawings will not be measured or paid for.

## 1.1.1 Method of Determining Weight with Delivery by Vessel or Barge

## 1.1.1.1 Gauges

If stone is delivered by vessel or barge, the carrier shall, prior to use in connection with this work, be fitted by the Contractor at its own expense with gauges or such other facilities for determining displacement as may be required by, or be satisfactory to, the Contracting Officer. Carriers which owing to their model or other cause cannot be accurately gauged for displacement shall not be used on this work. Gauges shall be graduated to the tenth of a foot, or to other suitable unit approved by the Contracting Officer. They shall be six (6) in number and shall be located as follows: two (2) near each end on opposite sides, and two (2) amidship on opposite sides. The gauges shall be attached solidly to the hull itself, and wherever practicable, shall be located inside the hull. If located inside the hull, provisions shall be made for the free passage of the outside water to a vertical tube and for the ready measurement of the depth of the water within the tube. If located outside on wood hulls, the gauges shall be protected by solid fenders or be recessed into the planking, or if on steel hulls, the gauge marks may be placed directly on the plates and identified by punch marks. Gauges shall be so placed that their zeros are below water when the carrier is in its normal trim, light and free from water. The installation of the gauges shall be subject to the approval of the Contracting Officer. The Contracting Officer shall be notified a minimum of five (5) days prior to installation of gauges.

## 1.1.1.2 Gauging Tables

To facilitate the determination of the weight of each load, a gauging table for each carrier employed shall be prepared by an accredited agent satisfactory to the Contracting Officer. The gauging table shall show the cargo weight, in tons of 2,000 pounds, for each unit of measurement of the draft. If the lines of the carrier are such that the cubic feet of displacement for each measured unit of draft can be accurately calculated, the gauging table shall be based upon the data, using 62.4 pounds as the weight of one (1) cubic foot of water. If the lines of the carrier to be

gauged are such as to render impracticable the preparation of the gauging table by the above described method, the weight for each unit of draft shall be determined by measurement of displacement by actually loading stone of known weight and the weight thus obtained shall be entered in the table for use in subsequent gauging. If alterations are made in any carrier which will affect the accuracy of the gauging table, after it has been prepared, or if otherwise deemed necessary at any time by the Contracting Officer (C.O.R.), the carrier shall be remeasured, and a new gauging table prepared. Existing stone placed in lieu of new stone is excluded from measurement for payment for new stone.

#### 1.1.1.3 Reading of Draft Gauges

Readings to determine the draft will be taken before and after unloading, and the difference in tonnage thus found, that is, the difference between displacements loaded and light, will be used to determine the net weight to be paid for. The draft shall be determined from the average of all six (6) readings, weighting the readings of the middle gauges at double those of the end gauges. The Contracting Officer or the designated Contracting Officer's Representative shall be present at all draft gauge readings.

#### 1.1.1.4 Uniform Loading

The carrier shall be so loaded as to cause uniform submergence. The increase in draft on the middle gauges, as a result of the load, shall not differ by more than 0.5 feet from each other, and that between any bow gauges and any stern gauges shall not differ more than 1.5 feet from each other. If such is not the case, the Contractor shall trim the carrier by shifting the stone until this limit is reached, before the stone will be accepted. If, however, the carriers proposed to be used by the Contractor are so built that they cannot be loaded as prescribed, and yet can be calibrated accurately for displacement under varying loads, such other method of determination of displacement as may be approved by the Contracting Officer may be used.

#### 1.1.1.5 Readings in Still Water

All measurements for determining gauging table data and for load depths shall be made in still water as close to the work as is possible. The Contractor is required to place the carriers where such measurements can be accurately made.

#### 1.1.1.6 Leaks

All carriers used in transporting stone shall be free of leaks such as would render accurate gauging difficult. Facilities for inspecting the hold of each carrier to determine whether leakage is occurring shall be provided. Each carrier shall also be provided with adequate pumping facilities, and if water is found to be accumulating in the hold, the carrier shall be pumped dry before each gauging, both before and after unloading.

#### 1.1.1.7 Variations During Unloading Operations

Lightening by pumping or by transfer of crews or supplies will not be permitted while stone is being discharged. Should any lightening become necessary, the unloading of stone shall be suspended and the load marks shall be taken in such manner as to insure the Government against loss from the cause.

#### 1.1.1.8 Carrier Designations

Each carrier shall be plainly marked by a distinctive number, letter, or name, which shall not be changed or given to any other carrier during the contract period.

#### 1.1.1.9 Verification of Measurements

The readings, other data, and calculations from which the gauging table and the tonnage are determined will be open to verification by the Contractor and shall be subject to the approval of the Contracting Officer. The Contractor is invited to be present in person or to be represented by an authorized agent during the measuring of carriers. When the displacements of the carriers are determined or redetermined, a record of allowed displacement for quantity determination will be sent to the Contractor. If the Contractor protests within five (5) days, the carrier will be remeasured and the Contractor must be present in person or be represented by an accredited agent so that correct measurements can be agreed upon. The Contractor will be given the weight of each load as it is determined. Failure to protest within five (5) days will be taken as equivalent to expressing satisfaction with the measurements and weight of stone determined by the Contracting Officer.

#### 1.1.1.10 Carriers Not Measured

In case any stone is delivered by carriers not measured for displacement and marked as herein described, the Contractor shall, at its own expense, furnish means for properly and conveniently weighing such stone at the work site. In case any stone is delivered by carriers not measured for displacement and marked as herein described, the Contractor shall, at its own expense, furnish means for properly and conveniently weighing such stone at the work site.

#### 1.1.2 Method of Determining Weight with Delivery by Truck

The method of measurement for determining the weight of stone materials delivered by truck shall be certified weigh bills provided by the Contractor. Weigh bills and the scales used for weighing of trucks and materials contained therein shall, unless otherwise approved by the Contracting Officer, conform to the following requirements:

a. Scales shall conform to the requirements of the NBS Handbook H 44. The tolerance applications of the Handbook, as applicable to under registration and over registration and to tests involving digital indications or representations, shall apply. A scale shall not be used for weighing a load totaling more than the nominal capacity marked on the scale by the manufacturer. Any portion of the load in excess of the nominal scale capacity will not be considered for payment.

(1) The accuracy of the scale shall be checked. When a State scale inspector is not immediately available for checking the scale, the Contractor may, at its own expense, secure a check from a local official sealer of weights and measures, or the Contracting Officer may give tentative approval, based on check truckloads weighed on other scales which bear an official seal placed in the current calendar year.

b. The total weight of a single highway vehicle shall be weighed as a

single draft and shall not be determined by adding together the results obtained by separately weighing each end of such vehicle except that weighing of a coupled combination may be determined without uncoupling under the following conditions:

- (1) The brakes are released.
- (2) There is no tension or compression on the drawbar.
- (3) The approaches are straight and in the same level plane as the scale platform.
- (4) The approaches are paved at least fifty (50) feet in each direction with a seal coat or higher type surfacing.
- (5) The approaches are of sufficient width and length to ensure level positioning of vehicles during the weighing operation.

c. When a print-out system is employed on a platform or surge bin scale, it shall be equipped with a printer which shall print the following information on a triplicate ticket for each truckload:

- (1) Time
- (2) Date
- (3) Sequential ticket number (may be preprinted on ticket)
- (4) Gross Weight
- (5) Tare Weight (trucks shall be tare weighed at least twice daily)
- (6) Net Weight
- (7) Net accumulated job daily total
- (8) Truck identification number

d. The system shall be so interlocked as to allow printing only when the scale has come to a complete rest.

#### 1.1.2.1 Scales

For scales not equipped with the print-out system, as stated above, weigh bills shall contain the same or equivalent data as specified for the print-out system. Weigh bills, including print-outs, shall be certified by the signature of the scale operator, which shall attest that the information shown on the weigh bill is correct and is the weight(s) observed on the scale at the time of weighing. Each weigh bill shall also be certified by the Contractor attesting that the entire load was properly placed in the work, and shall show the time and date of weighing and the time and date of unloading. Each truck shall be plainly marked by a distinctive number, letter, or name, which shall not be changed or given to any other truck during the contract period. The Government reserves the right to periodically inspect the weighing operations at the scales.

#### 1.1.2.2 On-Site Scales

On-site scales shall be certified by the applicable local weights and

measures regulating agency and shall be as approved by the Contracting Officer. Scales shall be of the recording type and of the size required to weigh the materials and containers or vehicles. The scale shall include a housing for the instruments and scale operator, with heat, lighting and ventilation.

### 1.1.3 Determination of Excess Stone

All stone outside the limits and tolerances of the cross sections of the structure, except minor variations as determined by the Contracting Officer, will be deducted from the quantity of new stone to be paid for. Weight of excess stone will be determined from the cross sections obtained by the method provided for in Subparagraph, "Final Surveys," on the basis that the cubic feet of volume (including voids) for each type of stone, as listed below, is equal to one (1) ton or 2,000 pounds for a specific gravity of stone furnished equal to 2.75. If the specific gravity of the stone furnished is other than 2.75, the cubic feet of volume equaling 2,000 pounds shall be recomputed. The re computation shall be done by multiplying the indicated volume per ton by the ratio of 2.75 divided by the specific gravity of the stone furnished. Should any excess stone be disclosed above the tolerance line as defined in Subparagraph, "Tolerances," its volume will be computed by the average end area method, based on the cross sections in the following manner. The average end area of excess stone above the tolerance line for two (2) successive cross sections, multiplied by the distance between the cross sections will be accepted as the volume. The Contractor will not be required to remove such excess stone and deductions for the weights thereof will be made from contract payments for new stone. In addition to the above, stone which has been delivered to the site and has been lost or wasted or otherwise not properly incorporated into the final required work, shall be deducted from the quantity to be paid for.

Type of Stone	Voids	Cubic Feet of Volume Per Ton Including Compensation for Voids
		(for excess quantity calculations)
Armor Stone	38%	17.93

#### 1.1.3.1 Final Surveys

Survey work and measurements required for determination of excess volume computations for stone materials will be done by the Government. Volume computations will be done by the Government. Cross section surveys will be taken perpendicular to the axis of the structures. Elevations and soundings will be taken on lines twenty-five (25) feet apart measuring along the structure reference line, with the readings at five (5) foot intervals and at breaks in the grade along the line. Other survey intervals and readings may be used if deemed appropriate or advisable by the Government's on-site representative. Additional cross sections, elevations and soundings may be taken if determined necessary by the Government's on-site representative. Determination of quantities will be made by the Government's on-site representative and having once been made, will not be reopened, except on evidence of collusion, fraud or obvious error. Prior to any work under this Section, the Contractor shall coordinate all operations with the Government's on-site representative so that excess volume surveys will be made at the appropriate time. The surveys made under Subparagraph, "Check Surveys" may be used when deemed appropriate by the Government's on-site representative, as part of the surveys required herein. Stone quantity computations shall be based

entirely upon weights of new stone as determined from carrier displacement or certified scale weight tickets.

## 1.2 CONVERSION FACTORS OF IN-PLACE VOLUME TO BID QUANTITIES

The following factors were used in converting the in-place volume to the quantities shown in the BIDDING SCHEDULE.

<u>Stone Material</u>	<u>Specific Gravity</u>	<u>Percent Voids</u>
Armor Stone	2.75	38%

If the specific gravities of any of the material proposed for use by the Contractor are different from that shown above, the Contracting Officer will recompute estimated quantities; these recomputed values will be those on which overages or underruns are based. The allowable variations as defined in CONTRACT CLAUSE entitled "VARIATION IN ESTIMATED QUANTITY" will be calculated in accordance with Subparagraph, "Revised Quantities" below for stone within the specified design range of 2.50 to 2.90 (Specific Gravity). For other specific gravity ranges, the allowable variations and applicable calculations areas described in Paragraph, "SPECIFIC GRAVITY OF STONE AND REDESIGN".

### 1.2.1 Revised Quantities

The estimated quantities of stone listed in the BIDDING SCHEDULE were computed on the basis of stone having a specific gravity (saturated surface dry (SSD) basis) of 2.75 based on water having a unit weight of 62.4 pounds per cubic foot. When the specific gravity (SSD) of the stone to be used in the work is between and including 2.50 and 2.90, the estimated quantities will be revised by multiplying them by the fraction which results when the specific gravity (SSD) of the stone is divided by 2.75. The revised quantities will then be the quantities from which the allowable fifteen percent (15%) variation in quantity will be determined.

#### 1.2.1.1 Modifications to Specific Gravity

If the specific gravity (SSD) of the stone to be used in the work is between 2.50 and 2.90, but is other than 2.75, the Contracting Officer will issue a modification in accordance with CONTRACT CLAUSE entitled "CHANGES" to adjust the estimated quantities.

## 1.3 SPECIFIC GRAVITY OF STONE AND REDESIGN

### 1.3.1 Specific Gravity

The estimated quantities of stone set forth in the BIDDING SCHEDULE of the SOLICITATION were computed on the basis of material having a specific gravity (SSD) of 2.75.

### 1.3.2 Stone Within Specified Design Range of Specific Gravity

When stone to be furnished is within the specified design range of specific gravity, no redesign will be considered or made.

### 1.3.3 Modification of Specified Design Range of Specific Gravity

If the Contractor, after award of the contract, requests approval of stone from a source(s) which has a range of specific gravity(SSD), whose limits



are lower or higher than the specified design range of 2.50 to 2.90 as specified in Subparagraph, "Material Quality" of Paragraph, "STONE MATERIALS," consideration will be given to modification under the following conditions:

a. The modification of the specified design range will result in a savings to the Government. Such savings shall not be subject to CLAUSE titled "VALUE ENGINEERING-CONSTRUCTION."

b. Only one (1) such proposal for modification will be allowed. In addition, the required completion time shall not be extended more than thirty (30) days as a result of redesign for any reason, including acts of the Government.

c. The modified design range of specific gravity (SSD) to be used shall not have a lower limit of less than 2.30 nor higher than 3.50.

d. The stone sections of the required structure are to be re designed by the Government. Such redesign will be based on the Contractor's proposed modification to the specified design range of specific gravity (SSD) and will include any required revisions to allowable tolerances. Only one such redesign will be made. A charge of \$5,000 will be assessed the Contractor whether the redesign is used or not.

(1) The above redesign will be made upon written request from the Contractor. The request shall state the proposed modified design range of specific gravity (SSD). With the request the Contractor shall submit records of laboratory tests performed on the proposed stone source(s) indicating the range of specific gravity (SSD) of the stone source(s). The laboratory tests shall have been performed by a Government approved commercial laboratory.

(2) The Government shall be allowed a period of twenty-one (21) calendar days after receipt of the request to make the redesign. The redesign will be made based on the lower limit of the proposed modified design range of specific gravity (SSD) furnished.

(3) Upon completion of the redesign it will be furnished to the Contractor, including revised estimated quantities for the BIDDING SCHEDULE, based on the average specific gravity of the proposed modified design range of specific gravity (SSD).

(4) Upon receipt of the redesign, the Contractor shall make a decision as to whether it will make a proposal to modify the allowable range.

e. Any proposal to modify the specified design range shall be submitted within fifteen (15) calendar days after receipt of the Government's redesign and shall include a statement as to the savings which will result from the modification. If a formal proposal is not submitted within the time limit, the work shall be performed in accordance with the specified design.

f. The statement of savings shall be in the form of the revised BIDDING SCHEDULE showing unchanged unit prices for the revised quantities.

g. The estimated quantities shown in the BIDDING SCHEDULE of the SOLICITATION will be revised by utilizing the quantity calculations

from the Government's redesign if the Contractor elects to perform the work in accordance with the redesign.

#### 1.3.4 Variation in Estimated Quantities

The allowable variations as defined in the CONTRACT CLAUSE entitled "VARIATION IN ESTIMATED QUANTITY" will be determined from estimated quantities which may be revised per Subparagraph, "Revision of Estimated Quantities".

#### 1.3.5 Revision of Estimated Quantities

After selection and testing of the stone source(s) to be used under the contract, the estimated quantities will be further revised based on the actual average of the specific gravity (SSD) of the stone delivered and used. (Note that quantities and resulting extensions only are revised, not unit prices.)

#### 1.4 STONE MATERIALS CONTROL (SMC) PLAN

The Contractor shall submit a written Stone Materials Control (SMC) Plan that describes the means and methods to be used for production, handling, transporting and placement and the effective inspection of material quality and gradation testing of stone materials in a manner which will result in a satisfactory quality of in-place stone construction. Written procedures shall be included for guiding and instructing the Contractor's SMC inspectors and construction workers in the techniques and criteria to be used for examining stone for acceptability and for the proper production gradation, handling, transporting, and placement of stone. Procedures shall be described for tracking armor stones used in conducting gradation tests, and for reporting the performance and results of the tests on Quality Control reports. Procedures shall be described for monitoring and recording the dates and locations of stone blasting, and tracking and documenting that furnished stone complies with the applicable quarrying period and curing restrictions, if any. This submittal shall be made not less than Thirty (30) calendar days in advance of the date stone materials are to be shipped from the source. The stone material control plan submittal shall designate a Stone Material Control Field Supervisor (SMCFS) who shall be responsible for implementation of all functions of the stone material control program. The stone material control plan submittal shall also include a sample daily SMC QC inspection report, which shall be used during stone material production. The SMCFS shall not have collateral project duties or responsibilities assigned by the Contractor except those specified in the stone material control plan submittal. If the prime Contractor acquires stone products required for this project through a subcontractor, the SMCFS shall not be an employee of the subcontracted company or subcontracted corporation producing the stone material or products. Government approval of the submittal shall not be provided until after the contractor has produced satisfactory set of Pre-Production Reference Stones, but not later than five (5) calendar days after all the requirements for the Pre-Production Reference Stones have been met, including the Contractor's laboratory testing results and prior stone source submittal.

#### 1.5 REVISION OF SMC PLAN OR INSPECTION STAFFING

If the Contractor elects to initiate a proposal to revise the SMC plan, the Contractor shall submit the proposed revision not later than (7) days prior to the date it proposes to implement the revision and shall not implement

the revision prior to the COR's approval. Changes to SMC inspector staffing levels or employees shall likewise be submitted for approval. Government required revisions of the SMC plan or Contractor staffing shall follow the procedures prescribed elsewhere in this Section.

#### 1.6 SMC FIELD SUPERVISOR QUALIFICATIONS

The Contractor shall submit the name(s) and evidence that the Stone Material Control Field Supervisor (SMCF) is a Graduate Geologist (minimum Bachelor's Degree) with not less than two years experience in geology and stone inspection; or is a Licensed Professional Geologist with not less than one year experience in stone inspection; or is an experienced SMCF supervisor with a minimum three years experience in stone inspection. This experience shall be in assessing stone quality for the size and type of armor stone and other stone specified in the contract, and in the project conditions to which the stone will be subjected. The SMCF Supervisor shall be responsible for preparing a daily SMC inspection report for the proper execution of the SMC plan, and shall oversee the work of all SMC inspectors. This submittal shall include data on applicable experience (names and locations of projects), training (names and locations of courses) and education (names and locations of schools, with names addresses and phone numbers of references for verification of each item of data. This submittal shall be made not less than 30 days in advance of the date stone materials are to be shipped from the source. Government approval of the submittal will not be provided until after the Contractor has produced satisfactory Pre-Production Reference Stones, but not later than 5 calendar days after all the requirements for the Pre-Production Reference Stones have been met, including Government laboratory testing if applicable.

#### 1.7 SMC REPORTS

During all SMC activities, the Contractor shall submit daily reports of all work performed under the approved SMC plan. The reports shall be delivered to the COR not later than the day following the SMC activity. An example daily report format is included in this specification as Attachment-B: Each daily report for each inspector shall include not less than the following information:

- a. SMC Inspector's name.
- b. Identification of the stone handling equipment during all phases of the work, and the name(s) of equipment operator(s) used to accommodate the stone inspection, if it appeared that the equipment or operator was a factor in producing unacceptable stone.
- c. Date of stone inspection.
- d. Weather conditions including temperature.
- e. Temperature and date stone was removed from quarry face, and date and details of blasting, if applicable.
- f. Location and strata within quarry where stone removal took place (horizontally and vertically).
- g. Color(s) and character(s) used by inspector for spray paint marks and the applicable code for stones which are individually sorted (versus mechanically sorted) and for any rejected stone.

h. Breakdown of the approximate quantity, per gradation range, of accepted and rejected stone processed for the project during the day, and the disposition of the rejected stone materials.

i. A summary of the cause or causes for most of the rejections of stone occurring during the day.

j. Running total of the quantity of each gradation range of stone shipped from the source to date.

k. Running average of the approximate per stone weight per gradation range for stones, which are individually picked for the project, i.e. excludes stones graded by use of a screen or grizzly.

## 1.8 RECORDS

At least 30 calendar days in advance of shipment of stone to the work site, submit a copy of bulk specific gravity (ASTM C 127) test results for each type of armor stone to be furnished. The information shall be furnished prior to preparation of the Pre-Production Reference Stones.

## 1.9 PRE-PRODUCTION QUALITY CONTROL

### 1.9.1 Material Quality

Before selecting a source for preparation of Pre-Production Reference Stones, the Contractor shall be reasonably certain that the source is capable of meeting the quality, quantity and source requirements specified in Section 02485.

### 1.9.2 Armor Stone Pre-Production Reference Stones

Following submittal of the Contractor's SMC plan and the Contractor's selection of a source, but prior to the Government's approval of a source and the SMC plan, the Contractor shall make arrangements to provide a set of Pre-Production Reference Stones. The SMC Inspector or SMCF supervisor shall select the Pre-Production Reference Stones for the approval of the Contracting Officer. The Pre-Production Reference Stones shall be located at the source of the stone and be laid out in windrow fashion. At least 10 Pre-Production Reference Stones for each type of armor stone to be furnished under this contract shall be provided. The Pre-Production Reference Stones shall be representative of the areas, faces, and lifts within the quarry from which the stone will be furnished; of the quality of stone to be furnished; and of the weight within the specified size range, for each type of armor stone. The Contractor shall also make arrangements to provide stones having each type of unacceptable feature set aside at the quarry as examples of unacceptable stone that shall not be shipped.

Acceptable stones over 2000 pounds in size shall have been marked with spray paint on three mutually perpendicular sides with a coded mark to denote acceptability for a certain size range. The representative unacceptable stones shall be marked with a "red X" as examples of unacceptable materials or shapes.

### 1.9.3 Evaluation of Pre-Production Reference Stones

The Contractor shall notify the COR when the Pre-Production Reference Stones are ready for evaluation. The Contractor's SMCFS and all SMC

inspectors shall accompany the COR during the Government's evaluation of the Pre-Production Reference Stones. The Contractor shall arrange to have individual stones to be free from any dust or mud covering the faces and turned as necessary to accommodate the COR's evaluation. The COR will mark unacceptable stones with a "red X". If 20 % or more of the stones within a set of Pre-Production Reference Stones are found to be unacceptable, the Contractor shall replace the unacceptable stones from available inventory for re-inspection, as soon as possible. If after a total of three attempts, the Contractor is unable to present an acceptable set of Pre-Production Reference Stones, the source shall be disapproved for this contract. The Contractor shall then be required to submit a new source for approval. In addition the Contractor shall submit the name and qualifications for a person to replace the SMC supervisor. The Contractor may, of its own accord, choose a replacement source at the time the first or second set of Pre-Production Reference Stones are found to be unacceptable. The replacement of stones for sets of Pre-Production Reference Stones or replacing of stone sources, shall be at no additional cost to the Government and with no change in the required completion period for this contract.

#### 1.9.4 Approval of Pre-Production Reference Stones

The COR will make an acceptance determination of the Pre-Production Reference Stones based on visual inspection and laboratory testing, conducted in accordance with paragraphs 2.2.1 and 2.2.2 where applicable. The Contractor will be notified in writing within 10 working days of a finding by the COR that the Pre-Production Reference Stones, SMC Plan, and SMC staff are acceptable. The Contractor may then proceed with production of materials for this contract, provided the materials are consistent with the accepted Pre-Production Reference Stones. If the Pre-Production Reference Stones are not accepted, the COR will notify the Contractor in writing within 10 working days of the inspection.

#### 1.9.5 Availability of Pre-Production Reference Stones

The acceptable Pre-Production Reference Stones and unacceptable stones as determined during the inspection by the Contracting Officers Representative shall remain unaltered at the quarry as quality and size examples throughout the duration of shipping stone for this contract.

#### 1.10 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only or as otherwise designated. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

##### SD-01 Preconstruction Submittals

Changes to Existing Condition (Check Surveys); G-AOF.

Prior to start of on-site construction submit any changes found in existing data provided on the plans.

Displacement Gauge Installation Data; G-AOF.

Complete information on the stone hauling vessel gauge installation shall

be submitted.

#### Gauging Table Data.

Furnish stone hauling vessel gauging tables and a copy of the data and calculations used for the preparation of the tables.

#### Equipment Data.

Prior to starting work, a list of all equipment, tools, machines, including their sizes, capacities and operating speeds, to be used in the performance of the work shall be submitted. All the plant shall be maintained in satisfactory working condition at all times.

#### Stone Source; G-AOF.

When using a listed stone source, the Contractor shall, at least 15 calendar days in advance of using such source, designate in writing the source or one (1) combination of sources from which it proposes to furnish each type of stone materials. The Government shall also at this time be given in writing the specific areas, lifts and geologic units in the quarry or pit to be utilized.

#### Alternate Stone Source Data; G-ECD.

If a proposed source is disapproved, submit the required data for an alternate listed stone source.

#### Redesign Data; G-ECD.

If the Contractor proposes to utilize stone having a specific gravity outside of the specific design range and the Government provides the Contractor with a redesign, the Contractor shall, within fifteen (15) calendar days after receipt of the Government's redesign, submit its formal proposal to perform the work in accordance with the redesign. The submittal shall include a statement of the direct savings to the Government and a tabulation in the form of a revised BIDDING SCHEDULE showing unchanged unit prices for the revised quantities.

#### Stone Production Testing Plan; G-ECD.

Prior to starting production of any stone materials, submit in writing the detailed methods of production testing the Contractor plans to follow. The details shall include the Contractor's methods to be used in processing, loading, and handling each test sample.

#### Stone Material Control (SMC) Plan; G-ECD.

Prior to starting production of any stone materials, submit in writing the Stone Materials Control (SMC) Plan for approval as detailed in paragraphs within this section.

#### Revision of SMC Plan or Inspection Staffing; G-ECD.

After Stone Materials Control (SMC) Plan has been approved any changes will be approved as detailed in paragraphs within this section.

#### Bilk Specific Gravity of Stone; G-ECD.

Prior to delivery stone materials, submit in writing the specific gravity for each different type of stone materials Control required for project as detailed in paragraphs within this section.

#### SD-07 Certificates

Weigh Scale Certification; G-AOF.

If an on-site scale is used, prior to the use thereof, submit details on the location and construction of the scale and a copy of the certification of the scale's accuracy from the local weights and measures regulating agency.

Certified Weight Scale Tickets.

A copy of each weigh bill, including certification of exact weight, time of weighing and delivery and certification of proper placement in the work shall be submitted within one (1) work day after weighing.

SMC Field Supervisor Qualifications; G-ECD.

Prior to starting production of any stone materials, submit in writing the Field Supervisor Qualification for approval as detailed in paragraphs within this section.

#### SD-06 Test Records

Specific Gravity of Stone.

At least fifteen (15) calendar days in advance of shipment of stone to the work site, submit a copy of specific gravity test results for the stone proposed to be furnished. The specific gravity test shall not be more than 90 days old.

Check Survey Data.

A copy of the record of each check survey shall be submitted within one (1) work day after the survey.

SMC Reports.

Contractor shall submit all writing Reports in conjunction with the Stone Materials Control Plan within 24 hours, as detailed in paragraphs within this section.

## PART 2 PRODUCTS

### 2.1 STONE MATERIALS

#### 2.1.1 General

The materials to be furnished other than for materials approved for re-use in SECTION 02139 "SITE PREPARATION", shall meet all requirements specified in this Section of the specifications. The Contracting Officer will, at any time during the contract, reject materials not meeting specified requirements at the source or job site. Inspection of materials at the quarry and job site by the Contracting Officer will be as specified in Paragraph, "QUALITY ASSURANCE." Inspection and testing of materials by the Contractor shall be as stated in Paragraph, "QUALITY CONTROL." Materials

which have been delivered to the project site and are rejected, whether in stockpile or in place in the structure, shall be removed from the project site at the Contractor's expense.

## 2.1.2 Sources

### 2.1.2.1 Listed Stone Material Sources

The following listed sources have been tested and/or have previously furnished materials that meet the quality requirements specified. Information for each of the listed sources is available for inspection and use by the Contractor in the Office of the Design Branch, Engineering and Planning Division, U.S. Army Corps of Engineers, Detroit District, 477 Michigan Avenue, McNamara Building, Detroit, Michigan. If a listed source is only qualified for certain types of material it is so noted.

- (1) Drummond Island Quarry, Drummond Island, Michigan.
- (2) Cedarville Quarry of the Michigan Limestone Division of the U.S.X. Corporation, Cedarville, Michigan.
- (3) Rogers City Quarry of Michigan Limestone Division of the U.S.X. Corporation, Rogers City, Michigan. (Qualifies for stone up to 1,000 pounds in weight.)
- (4) Inland Lime and Stone Quarry, near Manistique, Michigan.
- (5) Marblehead Quarry, Marblehead, Ohio.
- (6) Presque Island Quarry of Chemstone Corporation, Presque Isle, (Stoneport), Michigan. (Qualifies for stone up to 1,000 pounds in weight.)
- (7) Woodville Lime and Chemical Company Quarry, Woodville, Ohio.
- (8) Sherman Quarry, Pelkie, Michigan (Qualifies for stone up to 3 ton in weight.
- (9) Woolery Quarry, Woolery Stone Company, Bloomington, Indiana.
- (10) Reed Quarry, Bloomington Limestone Company, Bloomington, Indiana.
- (11) Hunter Valley Quarry, Empire Stone Company, Bloomington, Indiana.
- (12) Maple Hill Quarry, Bloomington Limestone Company, Bloomington, Indiana.
- (13) University Quarry, Indiana Limestone Company, Bedford, Indiana.
- (14) Adams Quarry, Indiana Limestone Company, Bedford, Indiana.
- (15) Diehl Hollow Quarry, Indiana Limestone Company, Bedford, Indiana.
- (16) Walsh Quarry, Indiana Limestone Company, Bedford, Indiana.



- (17) PM & B Quarry, Indiana Limestone Company, Bedford, Indiana.
- (18) Chumley Quarry, Empire Stone Company, Bloomington, Indiana.
- (19) Victor Oolitic Quarry, Victor Oolitic Stone Company, Bloomington, Indiana.
- (20) Valders Quarry, "Middle Level," Valders, Wisconsin.
- (21) North Quarry, Kelleys Island, Ohio.
- (22) Kelstone Quarry "Lower Level," Lake State Aggregate Company, Kelleys Island, Ohio.
- (23) White Rock Quarry, Edward Kraemer and Sons, Inc., Clay Center, Ohio.
- (24) Wallace Stone Company Quarry, Bayport, Michigan. (Qualifies for stone up to 6,000 pounds in weight.)
- (25) Sturgeon Bay Sand and Gravel Co., Sturgeon Bay, Wisconsin (Qualifies for stone up to 5 tons in weight.)
- (26) Materials Service Corporation Quarry, Thornton, Illinois. (Qualifies for stone up to 1,000 pounds in weight.)
- (27) Maybee Quarry, Stoneco Inc., Maybee, Michigan. (Qualifies for stone up to 1 ton in weight.)
- (28) Portage Stone Quarry, Portage (Wood County), Ohio, Stoneco Inc., Maumee, Ohio.
- (29) Lime City Stone Company Quarry, Lime City (Perrysburg), Ohio.
- (30) North Baltimore Quarry, France Stone Company, North Baltimore, Ohio.
- (31) Ottawa Lake Quarry, Stoneco, Inc., Ottawa Lake, Michigan. (Qualifies for stone up to one (1) ton, shaley material unacceptable.
- (32) Luckey Quarry, France Stone Company, Luckey, Ohio.
- (33) Bloomville Quarry, France Stone Company, Bloomville, Ohio.
- (34) Bellevue Quarry, France Stone Company, Bellevue, Ohio.
- (35) Au Glaize Stone Quarry, Oakwood, Ohio, Maumee Stone Company.
- (36) Maumee Quarry, Stoneco Inc., Maumee, Ohio.
- (37) Silica Quarry, Sylvania, Ohio, of the France Stone Company, Toledo, Ohio.
- (38) Ida Quarry, Grape, Michigan, of the France Stone Company, Toledo, Ohio.
- (39) Sibley Quarry, Trenton, Michigan, of the Michigan Foundation Company, Trenton, Michigan. (Qualifies for stone up to 2 tons in

weight.)

(40) Banat Quarry, Menominee, Michigan. (Qualifies for stone up to 100 pounds in weight.)

(41) Rexton Quarry, Rexton, Michigan, of the Sand Products Corporation, Brevort, Michigan.

(42) Middle Inlet Granite Quarry, Middle Inlet, Wisconsin.

(43) Byran Dresser Trap Rock Quarry, Dresser, Wisconsin.

(44) Scray's Quarry, DePere, Wisconsin. (Qualifies for stone up to 6,000 pounds in weight.)

(45) Rockwell Lime Company Quarry, Manitowoc, Wisconsin. (Qualifies for stone up to three (3) tons in weight from lower lift only.)

(46) Vulcan Material Company Quarry, McCook, Illinois. (Qualifies for stone up to 1,000 pounds in weight.)

(47) H.B. Hoadley Quarry, Bloomington, Indiana.

(48) Utley Quarry, Fairwater, Wisconsin.

(49) Zimmer Quarry, Kewaunee, Wisconsin. (Qualifies for stone up to 50 pounds in weight.)

(50) Mundt Quarry, Amberg, Wisconsin.

(51) Dundee Quarry, Dundee Cement Company, Dundee, Michigan.

(52) MacRitchie Stone Company Quarry, West Millgrove, Ohio. (Qualifies for stone up to 1,000 pounds in weight.)

(53) Ives Quarry, Vulcan Materials Company, West Pit, Racine, Wisconsin. (Qualifies for stone up to five (5) tons in weight.)

(54) Greenleaf Quarry, Greenleaf, Wisconsin. (Qualifies for stone up to 6,000 pounds in weight.)

(55) Franklin Quarry, Vulcan Materials Company, Milwaukee, Wisconsin. (Upper layer qualifies for stone up to one (1) ton in weight. In lower layer cherty material not acceptable, 6-inch maximum size.)

(56) Roberts Road Quarry, Rockwood Stone Company, Rockwood, Michigan. (3rd lowest ledge.) (Qualifies for stone up to 100 pounds in weight.)

(57) Monroe Quarry, France Stone Company, Monroe, Michigan. (Qualifies for stone up to 100 pounds in weight.)

(59) Republic Mine Dump, Republic, Michigan.

(60) Groveland Mine Dump, Randville, Michigan.

(61) Lindberg's 480 Quarry, Sands, Michigan.

- (62) Cold Springs Quarry, Cold Springs, Minnesota.
- (63) Isle Quarry, Isle, Minnesota.
- (64) Lannon Quarry, Halquist Stone Co., Sussex, Wisconsin.  
(Qualifies for stone up to five (5) tons in weight.)
- (65) Sussex Quarry, Halquist Stone Co., Sussex, Wisconsin.  
(Qualifies for stone up to five (5) tons in weight.)
- (66) Sussex Quarry, Vulcan Materials Co., Milwaukee Wisconsin.  
(Qualifies for stone up to 1000 pounds in weight.)
- (67) LaFarge Quarry, Alpena, Michigan (Upper lift only).
- (68) Ulland Rock Products, Ulland Bros., Duluth, MN.
- (69) Del Zotto Quarry, Del Zotto Manufacturing Co. Duluth, MN.
- (70) Buckley Quarry, Wissota Sand and Gravel Co., Superior, WI.
- (71) Waterloo Quarry, Michels Materials Company Co., Waterloo, Wisconsin.
- (72) Mosinee (Cisler) Quarry, Mathy Construction Co., Mosinee, Wisconsin.
- (73) Tork Quarry, E. Kraemer & Sons, Wisconsin Rapids, Wisconsin.
- (74) Baraboo Quarry, Baraboo Quartzite Co., Baraboo, Wisconsin.
- (75) Klingemeyer Quarry, E. Kraemer & Sons, North Freedom, Wisconsin.
- (76) Long Lake Quarry (Formerly Straits Aggregate Quarry), Alpena, Michigan. (Stone containing Chert or Stylolites are unacceptable.  
Qualifies for acceptable stone up to Six (6) tons in weight.)
- (77) Olson Brothers Quarry, Brule, Wisconsin. (Qualifies for stone up to 2 tons in weight.)
- (78) Peter Mitchell Mine, North Shore Mining Co., Babbitt, Minnesota.
- (79) Dodgeville No. 5 Mine Dump, Houghton, Michigan. (Qualifies for stone up to 100 pounds weight.)
- (80) Superior Sand and Gravel, Hancock, Michigan. (Qualifies for stone up to 250 pounds in weight.)
- (81) Hayton Quarry, Chilton, Wisconsin.
- (82) Grimms Quarry, Grimms, Wisconsin. (Qualifies for stone up to seven (7) tons in size.)
- (83) R.N.I.I. Inc. Quarry, Brussels, Wisconsin. (Qualifies for stone up to three (3) tons in size.)

(84) Rockland Quarry, Rockland, Michigan. Penska Construction  
(Qualifies for stone up to one (1) ton in size.)

(85) Havelka Quarry, Havelka Construction, Wallace, Michigan  
(Qualifies for stone up to 500 pounds in weight.)

#### 2.1.2.2 Bidding Requirement

Bids shall be based on obtaining stone from any of the sources listed by company name in the above Subparagraph titled "Listed Stone Material Sources". Bids shall not be based on non-listed sources.

#### 2.1.2.3 Source Potential

The sites listed as potential sources of material have not been investigated with respect to the availability of specific quantities and sizes of the material required for the project. Listing of sources herein before only indicates that there is some material in the source, if selected zones and appropriate quarrying techniques are used, that meets all the requirements specified. The listing of sources does not guarantee that the quality or sufficient quantities of materials necessary for this contract are available in any of the sources listed nor does it guarantee that economical production can be obtained from that source.

#### 2.1.2.4 Source Verification

Nothing herein is to be construed as implying that sources listed herein are actually interested in or capable of producing or offering stone in the size, gradation, weights or quantities required or that transportation from the source to the project is available. The Contractor shall verify each source selected for its capability to produce the quantity required of the quality, sizes, gradation or weights specified.

#### 2.1.2.5 Material Suitability

The right is reserved to reject materials from certain localized areas, zones, strata, or channels of any source, when such materials are determined by the Contracting Officer to be unsuitable based upon quality requirements herein. Rejection of any or all material by the Contracting Officer shall not be grounds for a time extension under CLAUSE titled, "DEFAULT (FIXED-PRICE CONSTRUCTION)." Materials produced from a selected source(s) shall meet all requirements specified.

#### 2.1.2.6 Non-Listed Sources

Stone materials shall be furnished from any of the above-listed sources. Non-listed sources are prohibited.

#### 2.1.3 Specific Gravity

Since quantity determinations are contingent upon the range of specific gravity (saturated surface dry (SSD) basis) of stone to be supplied, the Contractor shall make an investigation to determine the lowest and highest specific gravity (SSD) of the stone available at the quarry or quarries it proposes to utilize and furnish a copy of the results to the Contracting Officer. Tests shall have been performed in accordance with RTH 107.

#### 2.1.4 Alternate Sources

If it is found during the contract that acceptable materials and quantities of materials cannot be obtained by the Contractor from the source(s) presently being used, the Contractor may request to be allowed to use alternate source(s). If the request is approved, the source(s) to be used shall be selected from the sources listed in Subparagraph, "Sources." Obtaining and furnishing materials from the alternate source(s) shall be at no additional cost to the Government.

#### 2.1.5 Material Sampling and Shipping

When directed by the Contracting Officer, stone and aggregate shall be shipped to the Government's laboratory for testing for quality prior to the start of placement. Additionally, if before or during the course of the quarry operations conditions are such that, in the Contracting Officer's opinion, testing to ensure the quality of the production material is warranted, the following action shall be taken:

##### 2.1.5.1 Test Samples

Test samples shall be obtained by the Contractor at its expense. Samples selected for testing shall be representative of material formations in the quarry to be used or being used on the project. The Contracting Officer's Representative must be present and approve the selection of all test samples before shipment. The Contracting Officer's Representative may elect to personally select all samples. Where specified sizes are in excess of 2,000 pounds, stone for samples shall weigh one (1) ton each. When specified sizes are under 2,000 pounds, but larger than 500 pounds, individual rock samples shall be the size of the largest stone specified, except that if the sources selected are capable of producing stone weighing 2,000 pounds or larger, the samples required shall weigh one (1) ton. In general, one (1) to three (3) stones representative of each stone grouping, as determined by the Contracting Officer from each quarry to be used, shall be selected for testing. Samples of stone groupings with a maximum size less than 500 pounds shall contain at least two (2) stones representative of the higher limit of the stone weights specified. In addition, the sample shall be representative of the gradation specified and the minimum weight of the total sample shall be not less than 500 pounds.

##### 2.1.5.2 Shipping Samples

The samples shall be shipped or delivered by the Contractor, at its expense, to the Waterways Experiment Station, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199. Tests performed will be as described in the Subparagraph, "Material Tests."

#### 2.1.6 Material Tests

Tests to which the material will be subjected to will include one (1) or more of the following tests: petrographic examination, specific gravity, abrasion, absorption, wetting and drying, freezing and thawing, soundness, compressive strength, expansion, tensile strength, pulse velocity, gradation, water content, dry unit weight and total porosity, elastic moduli, direct shear and any others determined necessary to assure acceptable material. All tests shall be performed in accordance with the applicable portion of the ASTM C 127, ASTM C 295, ASTM C 535, ASTM D 653, ASTM D 2664, ASTM D 2845, ASTM D 2936, ASTM D 2938, ASTM D 3148, CRD C 107, CRD C 127, CRD C 137, CRD C 144, CRD C 145, CRD C 148, RTH 101, RTH 102,

RTH 103, RTH106, RTH 107, RTH 108, RTH 109, RTH 110, RTH 111, RTH 112, RTH 115, RTH 201, RTH 202, RTH 203, and tests listed in Paragraph, "REFERENCES," except some variations of these tests as developed by the Waterways Experiment Station may be used if applicable to local conditions. All tests will be made by, or under the supervision of, the Government and at its expense, except as specified in Paragraph, "QUALITY ASSURANCE." A series of tests on only one (1) separate proposed source or single combination of sources above those listed in the Subparagraph, "Listed Stone Material Sources," will be made at the Government's expense. Further testing shall be at the Contractor's expense.

## 2.2 MATERIAL QUALITY

All stone shall be of a quality to insure permanence of the structure in the climate in which it is to be used. The stone shall be durable, sound, free from detrimental cracks, blast fractures, seams and other defects which tend to increase deterioration from natural causes or cause breakage during handling and placing. It shall be highly resistant to weathering and disintegration under freezing and thawing and wetting and drying conditions. Acceptability of stone material will be determined by the Contracting Officer from suitable laboratory tests, visual inspection, and service records. Tests which the material may be subjected to are given hereinbefore in Subparagraph, "Material Tests". Inspection for cracks, fractures, seams, defects, and deterioration shall be made by visual examination. Inclusion of objectionable quantities of dirt, sand, clay, chert and rock fines or other deleterious material will not be permitted. Selected granite, quartzite, rhyolite, trap rock, limestones, some dolomitic limestones and certain sandstones will generally meet the requirements of these specifications.

### 2.2.1 Specific Gravity Range

All stone shall have a minimum specific gravity of 2.50 and a maximum specific gravity of not more than 2.90 based on water having a unit weight of 62.4 pounds per cubic foot. Reference is made to Paragraph, "CONVERSION FACTORS OF IN-PLACE VOLUME TO BID QUANTITIES," for data on converting in-place volume to bid quantities and for information on variations in specific gravity.

### 2.2.2 Stone Dimensions

The least dimension of any piece of stone shall not be less than one third of its greatest dimension.

### 2.2.3 Prepared Limestone

The stone material for prepared limestone shall be crushed and graded and shall not contain more than fifteen percent (15%) of thin or elongated pieces.

## 2.3 QUARRY OPERATIONS AND HANDLING

Quarry operations shall be conducted by the Contractor/Supplier in a manner that will produce stone conforming to the requirements specified and may involve selective quarrying, handling, processing, blending, and loading as necessary. Blasting and handling of rock shall be controlled by the Contractor/Supplier to produce rock of the size ranges and quality specified. Techniques such as the use of proper hole diameter, hole depth, hole angle, burden and spacing distances, types and distribution of

explosives, delay intervals and sequence, removal of muck piles between each shot, and special handling techniques will be required as necessary to produce the specified materials. All aspects of blasting operations shall be specifically designed so that the end product is not damaged from the blasting technique and that the stone is suitable for the intended purpose. Stone in excess of 500 pounds each will not be accepted from material which was blasted from the face of the quarry during the period of 15 October to 1 May for quarries located above 43 degrees North latitude and 1 November to 1 May for quarries located below 43 degrees North latitude.

#### 2.3.1 Temporary Storage

Storage of stone materials subsequent to shipment from the quarry and prior to permanent placement in the required work shall be subject to approval of the Contracting Officer. Underwater storage of stone materials is prohibited.

#### 2.4 GRADATION

Material having the gradations listed below shall be placed in the work at locations shown on the drawings. Gradation limits are in-place requirements. Adjustments in production and placing methods shall be made as necessary to assure final placed materials are within specified ranges.

##### 2.4.1 Armor Stone Protection

Armor stones protection shall weigh between sixteen thousand (1,600) pounds and thirty-two thousand (3,200) pounds each, with a minimum of 75% greater by weight exceeding twenty-two thousand 2,200 pounds.

### PART 3 EXECUTION

#### 3.1 PLACEMENT

Existing stone materials approved for re-use and placement in lieu of required new stone in accordance with the requirements of SECTION 02139, "SITE PREPARATION" shall be used in their entirety before new materials of the respective gradations are placed.

##### 3.1.1 General

All materials shall be placed uniformly within the slope lines and grades indicated on the drawings or as directed by the Contracting Officer. Material shall be placed by equipment capable of handling materials of the size specified.

##### 3.1.1.1 Placement of Stone Protection on Geotextile

In areas where geotextile is shown to be placed, the geotextile shall be in place prior to placement of the stone thereon. Placement of the geotextile is specified under SECTION 02215, "GEOTEXTILE." The stone shall be placed on the geotextile with care so as not to rupture the fabric and shall not be dropped from a height greater than one (1) foot. During placement of stone, any damage to the fabrics shall be repaired in an approved manner by the Contractor, at no additional expense to the Government.

##### 3.1.2 Limitations of Placement Procedures

Stone construction in advance of completed permanent protection except as

specified herein shall be at the Contractor's risk. The Contractor shall keep the Contracting Officer advised as to any and all situations that may result in a possible interruption of work.

### 3.1.3 Armor Stone

Stone shall be placed in the locations and at the thickness shown without deviating from the lines and grade shown on the drawings, including allowance for tolerances. Final shaping of the slope shall be performed concurrently with the initial placement of the stones. Stones shall be randomly selected and set in contact with each other so that the interstices between adjacent stones shall be as small as the character of the stone will permit. The face of stone having the largest area shall be placed against the surface of the underlying material. Placement shall begin at the bottom of the slope. The heaviest stones are defined as those which exceed 2,200 pounds. The heaviest stones shall be placed as toe stones. Armor stones shall be placed in a manner to avoid displacing underlying materials or placing undue impact force on underlying material that would cause the breaking of stones. Unless otherwise specified, stone shall not be dropped from a height of greater than two (2) feet. The equipment used in placing the stone shall be suitable for handling materials of the sizes required including the ability to place the stone over its final position before release and if necessary pick up and reposition the stone. Drag line buckets and skips shall not be used in placement. Moving stone by drifting or manipulating down the slope will not be permitted. The finished work shall be a well distributed mass, free of pockets of either smaller or larger stone, having a minimum of voids and with the maximum of interlocking of stones. All stone when placed shall be stable, keyed and interlocked with no overhanging or perched stones. It should be anticipated that rehandling of individual stones after initial placement will be required to achieve the above requirements.

#### 3.1.3.1 Restrictions

Stone required to be placed over or adjacent to drains and subsurface pipes shall not be dropped, but gently lowered and placed in their final position by the material handling equipment.

### 3.1.4 Armor Stone Protection

Stone shall be placed to a full zone thickness in one operation in a manner to avoid displacing the underlying material or placing undue impact force on underlying materials and supporting subsoils. The armor stone shall be placed in a manner to produce a resultant graded mass of stone with minimum voids. Rearranging of individual stones may be required to achieve this result. Placement by any method which is likely to cause segregation of the various sizes will not be permitted. Unsegregated stone shall be lowered in a bucket or container and placed in a systematic manner directly on the underlying material. Placement shall begin at the bottom of the slope and proceed upward. Casting or dropping of stone over (1) foot or moving by drifting or manipulating down the slope will not be permitted. Final finish of slope shall be performed as the material is placed.

### 3.1.5 Slides

In the event of the sliding or failure of any part of the structure during its construction, or after its completion, but prior to its acceptance, the Contractor shall, upon written order of the Contracting Officer, cut out and remove the slide from the structure and then rebuild that portion of



the structure with new materials or reuse the displaced materials for rebuilding if deemed appropriate. The Contracting Officer shall determine the nature and cause of the slide. In case the slide is caused through fault of the Contractor, the foregoing operations shall be performed without cost to the Government.

### 3.1.6 Tolerances

The finished surface and stone layer thickness shall not deviate from the lines and grades shown on the contract drawings by more than the tolerances listed below. Tolerances are measured from, and perpendicular to, the indicated neat lines and are not cumulative. Extreme limits of the tolerances given shall not be continuous in any direction for more than five (5) times the nominal stone dimension nor for an area greater than 1000 square feet of the structure surface.

#### NEATLINE TOLERANCES

<u>Stone</u>	Above Neat line (Inches)	Below Neat line (Inches)
Armor Stone	6.00"	6.00"

The intention is that the work will be built generally to the required elevations, slope and grade and that the outer surfaces shall be even and present a neat appearance. Placed material not meeting these limits shall be removed or reworked as directed by the Contracting Officer. Excess material permitted to remain in place by the Contracting Officer will not be paid for.

### 3.2 QUALITY CONTROL

#### 3.2.1 General

The Contractor shall establish and maintain quality control for all work performed at the quarry or quarries and the job site under this Section to assure compliance with contract requirements. It shall maintain records of its quality control tests, inspections and corrective actions. Quality control measures shall cover all materials, equipment, tests and construction operations including but not limited to the following:

- a. Testing and inspection during start up operations and during production of materials for rock quality, weights or sizes and gradations of stone materials. Adjustments shall be made in methods and/or procedures as necessary to provide "in-place" stone materials in sizes conforming with the contract requirements.
- b. Placement of all materials to the slope and grade lines shown on the contract drawings and in accordance with this Section of the specifications.
- c. Conducting all operations in compliance with the requirements of SECTION 01130, "ENVIRONMENTAL PROTECTION".
- d. Observance of safety regulations.

### 3.2.2 Check Surveys

Surveys made by the Contractor are required on each material placed for determining that the materials are acceptably placed in the work. The Contractor shall make checks as the work progresses to verify lines, grades and thicknesses established for completed work. At least one (1) check survey as specified below shall be made by the Contractor for each twenty-five (25) foot section as soon as practicable after completion. Following placement of each type of material, the cross section of each step of the work shall be approved by the C.O.R. before proceeding with the next step of the work. Approval of cross sections based on check surveys shall not constitute final acceptance of the work. Cross sections shall be taken by the Contractor on lines twenty-five (25) feet apart, measured along the structure reference line, with readings at five (5) foot intervals and at breaks along the lines. However, other cross section spacings and reading intervals may be used if determined appropriate by the C.O.R. Additional elevations and soundings shall be taken as the C.O.R. may deem necessary or advisable. The surveys shall be conducted in the presence of an authorized representative of the Government, unless this requirement is waived by the Contracting Officer.

#### 3.2.2.1 Above Water

The elevation of stone above the water surface shall be determined by the use of a leveling instrument and a rod having a base twelve (12) inches in diameter. Other means, if approved by the Contracting Officer, may also be used.

#### 3.2.2.2 Below Water

For portions of the work that are under water, sounding surveys shall be performed either by means of a sounding pole or a sounding basket weighing about 8-1/2 pounds, each of which has a base measuring twelve (12) inches in diameter.

#### 3.2.2.3 Gage Board

The gage shall be checked prior to each survey. The Contractor shall install a gage board at the project site.

#### 3.2.2.4 Electronic Depth Recorder Method

When using an electronic depth recorder, the following procedures shall be used. The depth recorder shall be calibrated and adjusted for the gage, with check bar, at least six (6) times within a normal eight (8) hour work day. Normal calibration times shall be at the beginning of the work day, mid-morning, close of morning's work, start of afternoon's work, mid-afternoon, and the end of the day. Further calibrations shall be performed whenever there is any malfunction within the depth recorder or transducer which might affect the soundings, a major gage change, or change in water temperature due to industrial discharge or other causes. The check bar shall be set at approximately the deepest sounding in the area to be sounded. The depth recorder shall be calibrated to read at low water datum. When checking the calibration at mid-morning, end of morning, mid-afternoon and end of work, the same settings used for the previous calibration shall be used. If the calibration check does not agree with the previous calibration, the depth recorder shall be calibrated to the proper setting. Under no circumstances shall the setting of the depth recorder be changed between calibrations.

### 3.2.2.5 Tag line Method of Horizontal Location Along Station

If a tag line is used with a depth recorder, the soundings shall be marked with a fix every five (5) feet.

### 3.2.2.6 Predetermined Transit Angle Method or Ranges Method

The interval between predetermined angles or ranges along a sounding line shall not exceed 200 feet along the entire length of the sounding line. No predetermined angle shall form an intersection with the sounding line of less than 45 degrees.

### 3.2.2.7 The Speed of the Sounding Boat

When sounding, the speed of the sounding boat shall be as constant as possible, preferably between 180 feet per minute and 220 feet per minute.

### 3.2.2.8 Checking Gage

The gage shall be checked prior to each calibration and recorded on the sounding chart or in the field notes. The gage shall be checked prior to each calibration and recorded on the sounding chart or in the field notes.

### 3.2.2.9 Electronic Depth Recorder

The survey depth recorder used must be a standard model acceptable to the Contracting Officer using a sounding chart that can be read directly to the nearest foot and estimated to the nearest tenth (0.1) of a foot. Accuracy shall be better than 1/2 of 1 percent.

## 3.2.3 Quarry Test, Inspection and Samples

### 3.2.3.1 General

All tests specified herein shall be performed by, and at the expense of, the Contractor as part of its "Quality Control Program". Samples for testing shall be selected by the Contractor with the concurrence of the Contracting Officer's Representative. Tests shall be made as specified below and any adjustments to the Contractor's operation necessary to provide material meeting contract requirements shall be at the Contractor's expense. Stone materials which do not meet these specification requirements shall be separated to assure they do not get mixed in with acceptable materials.

### 3.2.3.2 Pre-production Testing

Stone materials produced during start-up operations at the quarry shall be tested and evaluated for quality, weight and gradations as required to assure compliance with the specifications. Three (3) consecutive tests shall pass all requirements, and be witnessed by the Contracting Officer's Representative, prior to full production operations or shipment of any material to the project site.

### 3.2.3.3 Quarry Samples

Prior to delivery of any stone to the job site and after pre-production testing is complete, the Contractor's inspector and the Contracting Officer's Representative shall meet at each quarry designated to supply

stone material and select stones, with required weight, to be set aside at the quarry as reference samples of the materials to be shipped to the project site. These samples shall be retained until completion of the project. Samples shall consist of at least one (1) stone representing the minimum, average and maximum weight of each size range in the gradation. Basic quarry material inspections shall be provided by the Contractor as part of its "Quality Control Program".

#### 3.2.3.4 Production Testing

Production quality control tests shall be performed at the quarry prior to shipment of materials to the project site and shall be performed at regular intervals throughout the project construction. Tests which do not pass are not counted toward the number of tests required. Production testing may be increased as necessary to maintain quality control when directed by the Contracting Officer's Representative. Increased production testing shall also be at the Contractor's expense. Samples for production testing shall be taken from materials as they are produced. The following minimum tests are required.

Stone	Type of Test	Minimum Size of Sample/Test	Minimum Number of Tests
Armor Stone	Gradation	3 Tons	
Stone Fill	Visual		
	Measurement		
	Weight		

#### 3.2.3.5 Visual Inspections

A visual check of all stone designated above shall be made at the quarry or at the project site as required for size, gradation, elongation, cracks, deterioration and other defects visible to the naked eye on the entire surface area of the stone. Five percent (5%) of the stone checked for cracks shall be wetted and re inspected for minute cracks to determine if additional inspections are necessary on all stone. Stone with cracks or defects that are detrimental to a long lasting product shall not be shipped to the project site.

#### 3.2.3.6 Measurement and Weight Tests

Stones over 500 pounds in weight shall be measured on three (3) mutually perpendicular axes and weight computed. Computed weights and measurements shall be recorded. Weighing of stones shall be performed only as necessary to verify questionable computed weights. Weighing of stones shall be recorded. Stone selected for measurement shall represent all sizes specified in order to verify conformance with the specified weight limits. Stones weighing less than 500 pounds shall be weighed and tabulated in a manner approved by the Contracting Officer for comparison with the specified gradation.

#### 3.2.3.7 Gradation Test

Stone gradation determination shall be as recommended by the Contractor and approved by the Contracting Officer.

#### 3.2.4 Project Site Inspection and Tests

At the project site, visual inspections shall be made of all materials for

size, gradations, fractures, etc., to assure that handling during loading, transporting, unloading and placement does not cause damage to the materials and to assure they are placed in accordance with the requirements of this Section. Any material broken, cracked, out of gradation or weight limitation or improperly placed in the work shall be removed and replaced with new stones or corrected as directed by the Contracting Officer at no additional expense to the Government.

### 3.2.5 Retests

The Government reserves the right to test or retest any of the material produced from the sources listed or used on the project at Government expense.

### 3.3 QUALITY ASSURANCE

During the contract period, both prior to and after materials are delivered to the job site, visual inspections of the stone materials may be performed by the Contracting Officer. If the Contracting Officer, during the inspections, suspects that the stone quality, gradation or weights of stone being furnished are not as specified, supplemental sampling and testing by the Contractor shall be required. Samples of the delivered stone for testing and the manner in which the test is to be performed shall be as directed by the Contracting Officer. This additional sampling and testing shall be performed at the Contractor's expense when test results indicate that the materials do not meet specified requirements. When test results indicate that materials meet specified requirements, an equitable adjustment for the sampling and testing will be made in accordance with CLAUSE titled "CHANGES." Any material rejected shall be removed from the job site at the Contractor's expense.

-- End of Section --

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## DIVISION 02 - SITE CONSTRUCTION

## SECTION 02540

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## SECTION 02540

## MINI-HORIZONTAL DIRECTIONAL DRILLING

## PART 1 GENERAL

Contractor shall submit a Schedule. Discuss the feasibility of the design with respect to time, depth, tolerances, excavation, shoring, and dewatering impacts. Contractor shall also submit qualifications of Mini-Horizontal Directional Drilling Contractor and Superintendent.

## 1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

## SD-02 Shop Drawings

Shop Drawings; G-ECD

Shop drawings to include equipment set up locations including dimensions, shoring and bracing, traffic protection, dewatering system, and provisions for worker safety.

Detailed Descriptive Drawings; G-ECD

Detailed descriptive drawings of the system and procedures to be employed.

As-Built Drawings; G-ECD

Contractor shall provide as-built drawings showing location and depths of alignments.

## SD-08 Manufacturer's Instructions

Material Safety and Data Sheets (MSDS);G-ECD

Contractor shall provide MSDS for all material on site.

## SD-01 Preconstruction Submittals

Schedule;G-ECD

Contractor shall submit a Schedule for installing Drainage Pipe to include time for utility verification.

HDD WORK PLAN; G-ECD

Two part plan. First part is to delineate what utilities need to be located for depth due to alignment concerns or safety concerns. The second part after verification of the depth of utilities is to provide data to include proposed type and size of equipment, guidance systems and method of grade and alignment adjustments base on utility depth exploration.

If utilities verification changes the alignments then contractor shall resubmit work plan with modifications.

Working drawings and written procedure describing in detail the proposed method of installation. This will include, but not be limited to, size, capacity and setup requirements of equipment; location and siting of drilling and receiving pits/areas; dewatering if applicable; method of fusion and type of equipment for joining pipe; type of cutting tool head; type of drilling mud and method of monitoring and controlling line and grade. If the Contractor determines that modifications to the method and equipment as stated in the submittal is necessary during construction, the Contractor will submit a Second plan describing such modifications, including the reasons for the modification.

An emergency contingency plan which will provide for the adequate closure of the operation and filling of void space that may develop between the pipe and excavated ground surface following an unanticipated loss and/or potential loss of soil and along the conduit alignment. The plan shall provide measures that when implemented will adequately prevent any ground surface settlement along the alignment.

The plan should contain details of emergency grout mix proportions if the alignment is abandoned, slump, and design strength, as well as equipment and grouting procedures including specified injection pressures and methods of void filling verification. The plan should also contain details of verifying, recording and reporting the implementation of the plan. The plan shall include the following:

Accident Prevention Plan; G-AOF

See Specification Section 01100 SPECIAL PROJECT PROCEDURES for requirements for the Accident Prevention Plan (APP). Ensure that all health and safety protocols related to jacking and boring activities are discussed in the APP, including confined space procedures (if applicable). Work shall be performed in accordance with the requirements of 29 CFR 1910, 29 CFR 1926,, EM 385-1-1, and other references as listed herein. Matters of interpretation of the standards shall be submitted to the Contracting Officer for resolution before starting work. Where the regulations conflict, the most stringent requirements shall apply

Protection of Existing Utilities; G-ECD

Provisions for Mud blow out into drain/pavement areas. Provisions for identifying and protecting adjacent utilities and structures.

SD-07 Certificates

QUALIFICATIONS; G-ECD

Submit documentation showing two years of guided boring experience for the supervisor and company, linear feet of installation, 10 similar projects showing date, duration of work, location, project owner information, (i.e., name, address, telephone number, contact person). By similar the list should include at least one of the following types of conditions:

diameter of bore 3 inch

depth 20.0 feet



type of pipe HDPE,PE

## 1.2 DEFINITIONS

Guided Boring or Mini-Horizontal Directional Drilling is a method of trenchless construction using a surface launched steerable drilling tool controlled from a mobile drilling frame, and includes a field power unit, mud mixing system and mobile spoils extraction system.

## 1.3 SCOPE

This specification addresses the installation of 4 inch HDPE drainage pipe by guided directional drilling and development to assure drainage. HDPE pipe will consist of slotted and non-slotted components, as shown on the plans. A geotextile filter sock will be installed around the slotted portion. The Contractor will furnish all labor, components, materials, tools and appurtenances necessary or proper for the performance and completion of the contract. The Contractor shall install the carrier to be an Electrical Conduit.

## 1.4 GENERAL DESCRIPTION OF THE METHOD

Guided boring is a method of trenchless construction using a surface launched steerable drilling tool controlled from a mobile drilling frame, and includes a field power unit, mud mixing system and mobile spoils extraction system. The drilling frame differs from micro-tunneling, auger boring or pipe jacking equipment in that operations are performed from the surface; large pits to place and align equipment are not necessary. The drilling frame is sited and aligned to bore a pilot tunnel that conforms to the planned line and grade of the carrier pipe. The drilling frame is set back from the access and a high-pressure fluid jet toolhead is launched and guided to the correct invert elevation and line required. Using a real-time guidance system attached behind or within the toolhead, and which measures inclination, roll and azimuth, the toolhead is guided through the soil to create a pilot tunnel. Upon reaching the outlet point, the toolhead is removed and a reamer with the product pipe attached is joined to the drill string and pulled back through the tunnel. A vacuum spoils extraction system removes any excess spoils generated during the installation.

## 1.5 QUALIFICATIONS

Contractor shall submit the following qualifications.

### 1.5.1 Contractors Experience

Submit documentation showing two years of guided boring experience with at least 100,000 feet of guided boring installations to include a list of a minimum of 10 projects similar in scope (length of drilling, type of soil conditions, type of pipe, diameter of pipe and depth) and value to the project specified in the contract documents. Contractor shall submit with proposal.

Information must include, but not be limited to, date, location, pipe information (i.e., length, diameter, pipe material), project owner information, (i.e., name, address, telephone number, contact person).

### 1.5.2 Qualifications Supervisors

Submit a list of field supervisory personnel and their experience with guided boring operations. At least one of the field supervisors listed must be at the site and be responsible for all work at all times when guided boring operations are in progress. Guided boring operations will not proceed until the resume(s) of the Contractor's field supervisory personnel have been received and reviewed by the Contracting Officer.

### 1.5.3 Qualifications Safety Personnel

Provide qualifications of Safety personnel. Evidence of OSHA certification or license for its site safety representative/personnel responsible for gas testing. The Contractor's site safety representative shall provide the engineer with a copy of on-site safety practices and an emergency plan in accordance with OSHA requirements prior to start of work.

## 1.6 WORK PLAN

Contractor shall provide the following drawings and procedure describing in detail the proposed method of installation. This will include, but not be limited to, size, capacity and setup requirements of equipment; dewatering if applicable; method of fusion and type of equipment for joining pipe; host pipe; type of cutting tool head; type of drilling mud, method of drainage development, and method of monitoring and controlling line and grade. If the Contractor determines that modifications to the method and equipment as stated in the submittal is necessary during construction, the Contractor will submit a plan describing such modifications, including the reasons for the modification.

## 1.7 PROTECTION OF EXISTING PROPERTY

### 1.7.1 Protection of Utilities

The Contractor shall specifically address as part of the submittal the depth or clearance distance between the underground utilities and drilling alignment with respect to the possible mud blowout and damage to utilities. Contractor shall take depth readings by meter to verify his alignment every 10 feet along the pipe centerline or before every utility crossing to assist in making the tolerances shown. Horizontal and vertical control shall be established and approved by the contracting officer.

### 1.7.2 Protection of Pavement, Existing Utilities and Drainage Bases

The Contractor shall specifically address as part of the submittal the depth or clearance distance between boring alignments and utilities. Contractor shall take depth readings by meter to verify his alignment every 10 feet along the pipe centerline or before every utility crossing to assist in making the tolerances shown.

The contracting officer shall be notified immediately if settlement readings exceed the limits as specified herein. Upon completion of the installation of the pipe all monitoring points shall be recorded once per day for 1 additional day. At the completion of the monitoring period the Contractor shall provide the contracting officer with a report showing the location of all monitoring points and elevation readings.

The minimum depth under all asphalt and concrete paving is 5 feet.

## 1.8 SCHEDULES

The Contractor has the following scheduling constraints:

Contractor shall submit a schedule. The schedule should include:

utility verification

horizontally directional drilling alignment

Transportation and Disposal of Excavated Material

## 1.9 MSDS (Material Safety Data Sheets)

Contractor shall provide MSDS for all material on site. Drilling fluid products information (MSDS); special precautions necessary; method of mixing and application; and method of removing spoils.

## 1.10 SITE CONDITIONS

a. Drilling operations must not interfere with, interrupt or endanger surface and activity upon the surface. Contractor shall reroute traffic around work areas with appropriate signage.

b. The contractor shall contact Diggers Hotline at 1-800-242-8511 at least 3 days before installation.

c. The contractor shall install to the lines and grades on the drawing.

d. Contractor must comply with all applicable jurisdictional codes and OSHA requirements.

e. When rock stratum, boulders, underground obstructions, or other soil conditions that impede the progress of drilling operations are encountered, the Contractor and Contracting Officer Representative must review the situation and jointly determine the feasibility of continuing drilling operations, making adjustments or switching to an alternative construction method.

### 1.10.1 Geotechnical Testing and Groundwater

a. Contractor shall sample the soils and classify enough to perform the Horizontal Direction Drilling work along the alignment during the utility verification before updating the work plan. Borings are provided on sheet of the plans previous work in the area. Ground water is assumed deeper than 7 feet. Geotechnical test data is available upon request through Engineering and Technical Severice Division, Detroit District.

## PART 2 PRODUCTS

### 2.1 MATERIAL REQUIREMENTS

#### 2.1.1 Pipe Fittings

a. Contractor shall verify all utility unknowns prior to submitting a work plan for Horizontal Directional Drilling. Contractor shall submit type of pipe, fittings, gaskets, calculations/measurements on radius of bending, suitability for intended purpose and drilling mud 30 days prior to starting.

b. High Density Polyethylene Pipe (HDPE) slotted and non slotted, shall be used in accordance with the material specifications. Pipe shall be 4" in diameter. Slotted pipe shall be fully slotted with a minimum axial spacing of 20mm. The slotted pipe shall be wrapped in a geotextile filter sock that meets requirements stated in Section 02373, "GEOTEXTILE". The outlets shall be equipped with an animal guard gate to prevent entry of rodents or other animals. The gate shall be hinged to allow passage of debris. The inlet pipe end shall be capped. All additional appurtenances (tees, gaskets, etc.) will meet the material specifications. The Contractor shall select a pipe that has a wall thickness that can support the earth loads and the installation process. The Contractor will supply the pipe and fitting and will include its price in the bid. All pipe installed by guided boring will be joined by an approved butt fusion or electrofusion technique according to the manufacturers specifications. Contractor shall verify that the HDPE pipe radius of bending, and materials are adequate for intended purpose.

c. HDPE pipe will be produced from resins meeting the requirements of ASTM D1248, designation PE3408, ASTM D3350 cell classification PE345434C. Material taken from HDPE pipe will meet the minimum stability requirements of ASTM D3350. Pipe will be legibly marked at intervals of no more than five feet with the manufacturer's name, trademark, pipe size, HDPE cell classification, appropriate legend such as ASTM D3350, date of manufacture and point of origin. Pipe not marked as indicated above will be rejected.

d. The Contractor is responsible for ensuring minimal damage to the geotextile filter sock during installation. The Contractor shall elect a host pipe to carry the HDPE Pipe wrapped with geotextile that has a wall thickness that can support the earth loads and the installation process.

e. HDPE pipe shall have the minimum properties

Property	Test Method	Unit
Density	ASTM D-1505	>0.941gms/cm <sup>3</sup>
Flexural Modulus	ASTM D-3350	>110,000 psi
Modules of Elasticity (Young's Modulus)	ASTM D-638	28,200 psi
Long Term Strength	ASTM D-2837	
73 degrees		1,600 psi
140 degrees		800 psi
Material Cell Classification	ASTM D-3350	345434C
Material Designation	PPI Recommendation	PE3408

#### 2.1.2 Drilling Fluid

The fluid will be inert. The fluid should remain in the boring to ensure the stability of the tunnel, reduce drag on the pulled pipe, and provide backfill within the annulus of the pipe and tunnel.

## PART 3 EXECUTION

## 3.1 OBSTRUCTIONS

The Contracting Officer must be notified immediately if any obstruction is encountered that stops the forward progress of drilling operations. The Contractor and Contracting Officer must review the situation and jointly determine the feasibility of continuing drilling operations or switching to an alternative construction method. When it is determined that it is impossible to continue drilling operations, the Contractor will be allowed to abandon the completed portion in place, after grouting unless otherwise directed by the Contracting Officer.

## 3.2 DRAINAGE DEVELOPMENT

Development shall be conducted as soon as possible after drilling is completed. Development of the drainage shall consist of acid washing with aquafreed or similar product.

## 3.3 TOLERANCES

Contractor shall meet the following tolerances for each alignment. All lines shall be at a minimum depth of 5 feet feet below roadways, and parking lots, and grass areas.

## 3.3.1 Bending Radius

Bending radius shall not be less than 500 feet unless approved by the Contracting Officer. The bending may be increased as necessary to allow the pipe outlet be built at an invert elevation of 600 feet.

Outlet:Tolerance

Horizontal: ± 6 inches

Vertical: ± 3 feet

-- End of Section --